# THE (UN)CREDIBLE EXPERT WITNESS: THE IMPORTANCE OF TRUSTWORTHINESS AND EXPERTISE IN EXPERT WITNESS TESTIMONY

BY



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## ABSTRACT

The credibility of an expert witness is an important factor on the attitudes and behaviors of jurors. This study was conducted to investigate the relationship trustworthiness and expertise had on participants' verdict decisions, perceptions of expert witness overall credibility and each of the four separate dimensions of expert witness credibility. An audio recording presented an attack on the expert, showing him to be low in trustworthiness, low in expertise, low in both, or a control of neither. Dependent variables were participants' verdict decision of Likelihood of Negligence, and perceptions of credibility. Low trustworthiness and low expertise both significantly affect participants' verdict decision. Only the trustworthiness dimension affected participants' perception of overall credibility and trustworthiness, suggesting trustworthiness be treated as an independent dimension. Results further the construct of expert witness credibility and show trustworthiness and expertise to be important elements of expert witness credibility.

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# CHAPTER 1: INTRODUCTION

## Attacking Expert Witness Credibility: The Importance of Expertise and Trustworthiness

Expert witness testimony is often crucial in determining the outcome of a trial. The role of an expert witness is to provide testimony. He/she testifies to provide scientific or professional data, conclusions, and opinions of a specific content area that the jury members may not be familiar with (Brodsky, Griffin, & Cramer, 2010). The jury then acts as the "fact finder," choosing between two often opposing versions of the truth in order to resolve conflict (Greene, Neitzel, Fortune, & Heilbrum, 2007). When deciding the outcome of a given case, the jury need only to be convinced that the expert is a believable individual with important information (Chappelle & Rosengren, 2001). Therefore, the expert witness's credibility, specifically their expertise and trustworthiness, often becomes the central issue in a "battle of the experts" (Goldstein, 1988).

The degree to which the jury finds the expert witness to be credible can determine how persuasive their message is and thus influence the trial verdict. The more credible the expert witness, the more likely the data conclusions and opinions of their testimony will persuade members of the jury (Brodsky, Griffin, Cramer, 2010). Likewise, the less credible the expert, the less persuasive the message will be (Brodsky et al., 2010). Therefore, one crucial courtroom tactic of attorneys is to try and discredit the opposing expert witness (Piotrowski & Prude, 2004).

Expert witness credibility is multi-dimensional, consisting of several dimensions including trustworthiness (apparent honesty and integrity), expertise (assertion, authoritativeness, and competence), likeability (friendly, respectful, kind, well-mannered, and pleasant), and confidence (demonstrable self-assurance) (Brodsky et al., 2010). There are multiple dimensions of expert witness credibility, and these dimensions may operate independently in determining the

overall credibility of the expert. It is important to understand which dimensions of expert witness credibility are most influential in producing persuasion and attitude change because expert witness credibility may influence the outcome of a given case. The dimensions that appear most consistently are trustworthiness and expertise/knowledge (Cramer, Brodsky & DeCoster, 2009; Pornpitakpan, 2004). In order to determine the most effective way in which expert witness credibility can enhance the persuasiveness of their testimony, research needs to compare trustworthiness and expertise in order to assess which credibility dimension of expert witness testimony is more effective in producing persuasion, behavior, and attitude change of a jury in a courtroom. In order to accomplish this, research must look at the effect of a trial outcome when an expert witness is discredited through an attack on the expert's trustworthiness or expertise.

The purpose of this study is to understand the effects that occur when the trustworthiness and expertise dimensions of expert witness credibility are attacked. These findings will have practical implications for highlighting ways in which the expertise and trustworthiness dimensions of expert witness credibility can best be utilizes in order to enhance cases and persuasion. First, I will provide a review of the literature. In this section I will provide an overview of the role of an expert witness, situate the expert witness in terms of expert witness credibility, discuss the construct of source credibility and how it relates to persuasion, and finally I will argue the importance of focusing on the trustworthiness and expertise dimensions of expert witness credibility. Next, I will discuss the methods of the study. Here I will include the experimental design of the study, the manipulations, the participants, and the materials. Then, I will review the results of the study. Finally, I will provide a discussion and conclusion of the study as well as the limitations and directions for future research.

# CHAPTER 2: REVIEW OF THE LITERATURE

## The Expert Witness

The use of expert witness testimony occurs in both civil and criminal cases (Goldstein, 1988). The purpose behind the use of expert testimony is for expert witnesses to act as educators, supplying information and opinions necessary to help the jury of fact-finders evaluate evidence that they would otherwise not be able to comprehend (Hurwitz et al., 1992). The expert witness must possess specialized knowledge and skills ("Federal Rules of Evidence," 702, 2011) that can be scientific, technical, or experience related. In all jurisdictions, jury members are provided some type of instructions as how to view expert witnesses' testimony in order to reach conclusions about the case. These instructions may vary, but the following is an example from the Connecticut Civil Jury Instructions:

> In deciding the facts of this case, you are the sole judges of the credibility of the witnesses. You will decide which witnesses to believe and which witnesses not to believe. You may believe everything a witness says or only part of it or none of it. Every witness starts on an equal basis. You are to listen to all of them with an open mind and judge them all by the same standards ("Civil jury instructions," 2007).

The formal role of an expert witness is to provide the jury with information and instructions in order for the members of the jury to make the best and most informed decision on the outcome of a trial. Thus, the formal goal of an expert witness in a trial is to encourage the jury to focus on the cognitive message of the expert's testimony in order to make their decisions.

However, getting the jury to actively process the testimony is not always the primary role of using an expert witness in a trial. Due to the complexity of the testimony, jurors often rely on the credibility of the expert rather than just the facts of their testimony. One reason testimony is

often complex is because an expert witness is only allowed to provide testimony if the judge considers the subject matter of the testimony something that the average juror would not be able to comprehend without the help of the specialized knowledge or skills of the expert witness (Hurwitz et al., 1992). Further, expert witnesses are allowed to render opinions without disclosure of underlying facts or data ("Federal rules of Evidence," 705, 2011). Therefore, the information and opinions contained in the evidence can be complex to the members of the jury. And when information is ambiguous or complex, individuals tend to rely more on heuristics, or tacit, non conscious forms of problem solving such as credibility, to make a decision (Chaikin & Maheswaran, 1994).

Thus, the credibility of an expert witness can often become the central issue in influencing whom the jury chooses to believe (Goldstein, 1988). Credibility is the degree to which a source is perceived to be believable (O'Neal & Lapitsky, 1991). During the direct examination, attorneys may try to bolster their expert witness's credibility by focusing on the expert's training, experiences, and authorship in order to try and impress the jury (Goldstein, 1988). However, during cross examination, attorneys may try to dispute or discredit the expert witness by attacking their credibility (Chappelle & Rosengren, 2001; Goldstein, 1988; Piotrowski & Perdue, 2004). Attorneys are provided techniques in order to impugn the credibility of the expert during cross examination. McElhaney (1989), for example, provides eight techniques used to cross examine expert witnesses, including attacking the experts field of expertise, credentials, training, and qualifications and exposing the witness as being partial and biased. These techniques are used by attorneys to make the expert witness appear less credible to the jury in order to make their testimony less believable. To understand how the credibility of an expert influences the outcome of a trial, research needs to look at the dimensions of expert

witness credibility that affect experts' testimony, in order to determine the effect they have on the persuasiveness of the message and juror decision making.

Expert witness credibility is a subset of source credibility. Thus, before discussing expert witness credibility by itself, we first need to describe the construct of source credibility in general. The constraints through which an expert is allowed to provide testimony at trial encourages the jury to use heuristics when deciphering the expert's testimony and deciding the outcome of the trial. In other words, the more credible an expert witness is perceived to be by the jury, the more persuasive their testimony will be, and the more likely the message with produce attitude and behavior change in the jury (Brodsky et al., 2009; Brodsky et al., 2010; Cramer et al., 2009). Therefore, it is important to understand the factors involved in expert witness credibility and how they are used to enhance the credibility of the expert witness and the persuasiveness of their testimony.

**Defining the Construct of Source Credibility**

A credible source is one who is perceived by the recipient to have correct information as well as be able to communicate that information without bias (Linz & Penrod, 1984). Research has shown that the credibility of a source is an important factor in influencing the persuasiveness of a message on a receiver (Brodsky et al., 2010; Lafferty & Goldsmith, 1999; Sternthal, Dholakia, & Levitt, 1978). Sources high in credibility have been shown to be more persuasive than low credibility sources (Buckley, 1989; Hurwitz, Miron, & Johnson, 1992; McGinnes, 1973; Pornpitakpan, 2004; Sternthal et al., 1973). Further, highly credible sources elicit more positive attitude change and induce more behavioral compliance (Lafferty & Goldsmith, 1999; Pornpitakpan, 2004). Thus, it is important to make sure the source of a message is credible in order to have the message persuade and produce attitude change from the recipient. Credibility is

defined by the perceptions of the receiver, rather than through objective characteristics of the source (Buckley, 1989).

The construct of source credibility has been conceptualized as containing numerous factors (Brodsky, Neal, Cramer, & Ziemke, 2009; Brodsky et al., 2010), such as believability, likeability, and credentials have been shown to affect how credible a source is perceived to be by the receiver (Cramer et al., 2009). Other factors have also been found to affect the perceived credibility of a source. For example, the appropriateness of dress of the source can affect how credible they are perceived to be by the receiver (O'Neal & Lapitsky, 1991). The nonverbal behaviors and speech style of the source can also influence how credible they are perceived to be (Burgoon, Birk, & Pfau, 1990). Faster rates of speech increase a sources persuasiveness and credibility, whereas the more non-fluencies a speaker uses, the less credible they are rated (Linz & Penrod, 1984). Further, source credibility is an overarching type of credibility from which many subsets derive, such as endorser credibility, politician credibility, and expert witness credibility (Pornpitakpan, 2004). These multiple influences of factors on credibility have led to factor-analysis studies to determine the main dimensions of source credibility.

Factor analytic studies have identified different dimensions by which to measure credibility. For example, Berlo, Lemert, and Mertz (1969) identified the dimensions of source credibility as competence, trustworthiness, and dynamism. In 1990, Ohanian developed a scale to measure celebrity endorser credibility which identified the dimensions as expertise, trustworthiness, and attractiveness. Later, The Leathers Personal Credibility Scale resulted in two dimensions of personal credibility, trustworthiness and dynamism (Leathers, 1992). McCroskey & Teven (1999) concluded that source credibility dimensions included competence,

trustworthiness, and goodwill. Likeability, sociability, and objectivity are some of the other dimensions of source credibility that have been identified (Ohanian, 1990).

Though many dimensions of credibility have been identified, not all of the dimensions carry the same weight in how they influence the perception of credibility. The trustworthiness and expertise dimensions have been most commonly identified as the dimensions of source credibility (Buckley, 1989; Hurwitz, Miron, & Johnson, 1992; Lafferty & Goldsmith, 1999; Linz & Penrod, 1984; McGinnies & Ward 1980; Ohanian, 1990; Pornpitakpan, 2004). More importantly, trustworthiness and expertise have and been found to be the most persuasive as well as inducing the most behavioral and attitude change (Pornpitakpan, 2004). Therefore, research must compare the most consistent dimensions of expert witness credibility in order to determine their influence upon the fact finder. Specifically, if the trustworthiness and expertise of expert witnesses are attacked, how does the interpretation or acceptance of the expert witness's testimony change the attitude of the jury? Trustworthiness can be defined as the degree of confidence receivers have in the communicators' intent to communicate the assertions sources considers most valid, assigned by the receivers (Ohanian, 1990). The source is perceived as dependable, honest, reliable, sincere, and trustworthy (Ohanian, 1990). Expertise can be defined as the extent to which a communicator is perceived by receivers to be a source of valid assertion, authoritativeness, and competence (Ohanian, 1990).

**How Credibility Functions in Persuasion and Attitude Change**

Source credibility is an important construct because it affects the persuasiveness of a message and produces attitude change. Persuasion can be defined as a successful intentional effort at influencing another's mental state through communication in a circumstance which the persuader has some measure of freedom (O'Keefe, 2002 p.5). Persuasion requires there to be a

goal, an attempt to reach that goal, and a change in mental state regarding that goal (O'Keefe, 2002).

Researchers have posited that people employ a dual processing approach to persuasive messages. One model suggested to describe this process is the Heuristic Systematic Model. This dual-processing model posits that individuals can apply systematic processing, heuristic processing, or both when assessing a persuasive message (Bohner, Chaiken, & Hunyaoi, 1994). Systematic processing occurs when individuals form attitudes by actively attending to the cognitive message of the persuasive argument (Chaiken & Maheswaran, 1994). Systematic processing is regarded as more effortful and is likely to occur when individuals find the message important, have interest in or are motivated by the message, or the message is unambiguous or familiar (Chaiken & Mahswaran, 1994).

Heuristic processing draws upon heuristics-tacit, non conscious form of problem solving in which individuals rely on readily accessible strategies such as "experts can be trusted," "majority opinion is correct," and "long messages are valid messages" (Chaiken & Mahsawaran, 1994). Heuristic processing occurs when individuals are not personally interested in the message, do not find the message to be important, or the message is ambiguous, complex, unfamiliar, or unclear because it is open to more than one interpretation. These conditions result in individuals forming their attitudes and behavior about the persuasive message based on heuristics (Chaiken & Mahsawaran, 1994).

Further, systematic and heuristic processing can co-occur in an inter-dependent relationship where heuristic processing can bias systematic processing. For example, heuristic processing may influence the judgment indirectly by biasing systematic processing, especially when the information in a message is ambiguous or complex (Chaiken & Mahsawaran, 1994). If

a message is of low importance, heuristic processing occurs. If a message is of high importance and unambiguous, systematic processing occurs. But if a message is of high importance and ambiguous, systematic processing can be biased by heuristic processing. In other words, if the information in a message is ambiguous or complex, even though an individual is using systematic processing, heuristics can produce expectancies about the validity of the persuasiveness of the message.

One way in which heuristic processing can bias systematic processing is through credibility heuristics. The credibility heuristic is based on the perceived credibility of the source of the message resulting in beliefs that statements by experts or credible sources can be trusted (Bohner et al., 1994; Chaicken & Mahsawaran, 1994; O'Keefe, 2002). If a message is of low importance or ambiguous, individuals will rely on the credibility of the source to make a decision about the message. If a message is of high importance, heuristic biases can lead people to expect the message to have more valid arguments when coming from a credible source compared with a non-credible source, which in turn can cause a change in the receivers attitude and behavior compliance.

Research has shown that the dimensions of perceived credibility are associated with persuasiveness. A source that is perceived to have expertise will be able to persuade the receiver to change their attitudes or behavior regarding a message. A source that is trustworthy will gain power and enhance receiver compliance, and a source that is attractive or similar to the receiver will result in identification, thus making a greater impact on the receiver (Chaiken & Mahsawaran, 1994). As a result, sources high in these dimensions of credibility are able to produce more belief change, even if the message the source is arguing may not be the same as the listener's position (Linz & Penrod, 1984).

One case where the credibility of the source of a persuasive message can be important in inducing attitude change and behavior compliance is that of an expert witness. Expert witnesses provide testimony of information for a jury who often are not personally interested in the data. This situation encourages the use of heuristic processing for the members of the jury, thus the credibility of the expert witness can be very important in persuading the jury and forming decisions and behavior regarding the outcome of a trial.

## Defining the Construct of Expert Witness Credibility

The construct of expert witness credibility is structured similar to that of source credibility. Brodsky and colleagues (2010) conducted a factor analytic study to develop a scale for assessing expert witness credibility. The final scale included four dimensions of expert witness credibility; trustworthiness, knowledge, confidence, and likeability (Brodsky et al., 2010). Each dimension of the scale has five items that load onto it and each item can only load onto one dimension. For example, honest and reliable are items that load onto the trustworthiness dimension. By separating credibility into four sub-sections, Brodsky argues that credibility is decomposed into four separate components; however the dimensions are put merged in the Expert Witness Credibility scale to produce one overall credibility measure.

### *From Four Factors to Two: Expertise and Trustworthiness*

Although Brodsky (2012) decomposes credibility into four dimensions, throughout source credibility research the dimensions of source credibility most commonly identified are trustworthiness and expertise (Buckley, 1989; Hurwitz, Miron, & Johnson, 1992; Lafferty & Goldsmith, 1999; Linz & Penrod, 1984; McGinnies & Ward 1980; Ohanian, 1990; Pornpitakpan, 2004)**.** Further, trustworthiness and expertise have been found to elicit the most opinion change (Pornpitakpan, 2004). Brodsky and colleagues (2010) argue four dimensions exist. However,

these four dimensions do not have the same effect on expert witness testimony outcome, the persuasiveness of the message, or behavioral change in jury decision making. Of the four dimensions, trustworthiness and expertise/knowledge are the only ones that had an impact on death penalty cases (Cramer et al., 2009). In a study, jurors listened to testimony from an expert witness in a death penalty case. The different dimensions of expert witness credibility (likeability, confidence, trustworthiness, and knowledge) were manipulated. Results found that only when jurors found an expert witness to be both knowledgeable and trustworthy did the expert witness's testimony persuade them and impact their behavior in assigning the death penalty to a criminal defendant (Cramer et al., 2009). Thus the trustworthiness and expertise dimensions of expert witness credibility are most applicable to the courtroom setting because they are the dimensions of expert witness credibility that affect juror behavior.

By focusing on the trustworthiness and expertise we can compare the role each plays in expert witness credibility and determine the most effective way to enhance an expert witness's testimony. This can be achieved by looking at how participants perceive expert witnesses who have had their trustworthiness and/or expertise attacked and comparing it to the overall credibility perception of the expert witness, each of the four separate scales of expert witness credibility and juror decision making. Though research has looked at credibility in a courtroom setting, it has not focused on comparing the credibility dimensions of trustworthiness and expertise in regards to expert witness testimony. This is surprising because trustworthiness and expertise are perhaps the most consistent and applicable dimensions to expert witness credibility. Further, research has not yet investigated the effects attacking the trustworthiness and expertise of an expert witness has on the persuasiveness of the expert's testimony and the how it affects the jurors' verdict decision. Finally, the different dimensions of credibility have not been

analyzed against all four credibility sub-scales in this situation. These considerations lead to the following hypotheses.

H1a: When the Plaintiff expert witness is shown to have low trustworthiness it will decrease the likelihood that participants will assess a verdict favorable with Plaintiff, rather they will be more likely to find the Defendant Not Negligent, than in conditions where there is no manipulation of trustworthiness.

H1b: When Plaintiff expert witness is shown to have low expertise it will decrease the likelihood that participants will assess a verdict favorable with Plaintiff, rather they will be more likely to find the Defendant Not Negligent, than in conditions where there is no manipulation of expertise.

H2a: When the expert witness is shown to have low trustworthiness it will result in lower ratings of perceived overall expert witness credibility, than in conditions where expert witness credibility is not manipulated.

H2b: When the expert witness is shown to have low expertise it will result in lower ratings of perceived overall expert witness credibility, than in conditions where expert witness credibility is not manipulated.

H3a: When the expert witness is shown to have low trustworthiness it will result in lower ratings of perceived expert witness credibility on the trustworthiness dimension, but have no effect on the ratings of the other dimensions of expert witness credibility (expertise, likeability, confidence).

H3b: When the expert witness is shown to have low expertise it will result in lower ratings of perceived expert witness credibility on the expertise dimension, but have no effect on the ratings of the other dimensions of credibility witness credibility (trustworthiness, likeability, confidence).

H4: An interaction effect will occur in cases where the expert witness is shown to have both low trustworthiness and low expertise. Both manipulations together will result in a greater than expected likelihood of participants finding the Defendant "Not Negligent" than either the main effect of trustworthiness or expertise will produce on their own.

H5: An interaction effect will occur in cases where the expert witness is shown to have both low trustworthiness and low expertise. Both manipulations together will result in lower than expected participant ratings of overall perceived expert witness credibility than either the main effect of trustworthiness or expertise will produce on their own.

H6: An interaction effect will occur in cases where the expert witness is shown to have both low trustworthiness and low expertise. Both manipulations together will result in lower than expected participant ratings of the perceived expert witness credibility in the trustworthiness dimension and in the expertise dimension than either the main effect of trustworthiness will produce on the trustworthiness dimensions or expertise will produce on the expertise dimension.

# CHAPTER 3: METHODS

## Structure of Study

### *Design*

The present study was a 2X2 posttest only design. The independent variables in the study were the credibility of the expert witness; more specifically, the trustworthiness and expertise dimensions of expert witness credibility. Manipulation of the independent variables was achieved by showing the expert witness on the side of the Plaintiff to be low in the manipulated dimension of credibility during the cross examination through the questioning of the Defense attorney. During the cross examination, manipulation of the independent variables occurred in order to form the following conditions; the Plaintiff expert witness was shown to be low in trustworthiness, the Plaintiff expert witness was shown to be low in expertise, the Plaintiff expert witness was shown to be low in both trustworthiness and expertise, or a control conditions where neither the trustworthiness nor expertise of the Plaintiff expert witness was specifically attacked. The independent variables, the trustworthiness and expertise dimensions of credibility, were examined in order to test the effect they have on the dependent variables, the participants' verdict decision and the participants' perception of expert witness credibility.

Four versions of the Plaintiff expert witness's cross examination were recorded. Four groups of participants, each with approximately 25 individuals were brought into the lab at four different times. The procedure, instructions, questionnaires, and testimonies remained constant during each condition, except in the cross examination of the Plaintiff expert witness. Each condition was played and provided a different version of the Plaintiff expert witness's cross examination testimony; one group was played the low trustworthiness condition, one group was played the low expertise condition, one group was played the low trustworthiness and low

expertise condition, and one group was played the control condition. Participants were randomly assigned to the conditions. No other differences existed across groups.

***Procedure***

Upon arriving at the study, participants were seated at desks. They were then informed that their participation was voluntary and that they were allowed to leave at any time. Participants were then asked to sign an informed consent (Appendix A). Next, participants were asked to fill out a questionnaire containing demographic information in order to characterize the sample. Once this questionnaire was completed, participants were given the written transcripts of the case. They were then instructed that they were to act as jurors listening to a dispute. They were told they will hear testimony of the judge's opening statement, the direct and cross examination of the Plaintiff's expert witness and the direct and cross examination of the Defense's expert witness. Then, based on the testimonies from the expert witness', they were asked to determine an outcome of the case. Further, participants were told that they may read along with the written transcripts as they listen to them.

Participants were played an audio tape consisting of the judge's opening statement, the direct examination of the Plaintiff's expert witness, the cross examination of the Plaintiff's expert witness (wherein lies the manipulation), and the direct and cross examination of the Defense's expert witness. The audio of the transcripts took approximately 40 minutes.

Once participants heard all of the testimonies they were given another questionnaire and asked to complete it based on the testimonies they just heard. The questionnaire consisted of a question of the likelihood of Defendant Negligence, three open-ended questions, and Brodsky's (2010) Expert Witness Credibility Scale for both the Defense expert witness and the Plaintiff expert witness. The final questionnaire took participants approximately 20 minutes to complete.

Once participants completed the questionnaire, it was collected, and they were thanked for participating and given course credit for completing the study.

## Manipulation

A script of the courtroom case contained in Appendix B was developed in order to test the different manipulations of expert witness's credibility. The script simulated a personal injury and product liability dispute. It included the judge's opening statement informing jurors of the Plaintiff's claim of injury from a masonry nail as a result of negligent manufacturing of the nail by the Defendant, the Plaintiff's expert witness, a mechanical engineer, testifying in his direct examination that the nails were defective in that they were hard and brittle; the nails shattered easily, and the Defense expert witness, a metallurgist engineer, testifying in his direct examination that a chemical analysis found nothing wrong with the nails. The script also detailed the cross examination of each expert witness following their direct examination testimony. An audio-recording of the courtroom script was developed and presented along with a printed copy.

A manipulation check of expert witness credibility, specifically trustworthiness and expertise, on Brodsky's (2010) Expert Witness Credibility 9-Point Likert Scale was analyzed in order to confirm the correct credibility manipulation was occurring in the different conditions. Participants were asked to rate both expert witnesses on traits of credibility.

### *Manipulated Credibility: Trustworthiness and Expertise*

The manipulated variables of credibility (trustworthiness and expertise) occurred in the script of the cross examination of the Plaintiff's expert witness. Four versions of the cross examination of the Plaintiff expert witness were employed; low trustworthiness, low expertise, low trustworthiness and low expertise, and a control condition:

Low trustworthiness: The defense attorney showed the expert witness to be dishonest during the cross examination. This manipulation was portrayed by an attack on the expert witness' credentials. More specifically, through an admission by the expert witness that he only had a Bachelor's Degree, when he said he had a Master's Degree in the direct examination. The manipulation of low trustworthiness was further achieved by showing that the expert witness did not have as many professional engineering licenses that he claimed to have had in the direct examination.

Low expertise: The defense attorney showed the expert witness to lack the appropriate credentials to be considered experienced during the cross examination. This manipulation was portrayed by showing that the expert witness had not been published in a scholarly journal, was poorly regarded and rejected by his peers, and that his experience was in civil engineering even though he was testifying as a mechanical engineer.

Low trustworthiness/Low expertise: This condition was a combination of the first two conditions. The defense attorney showed the expert witness to be dishonest by lying about his credentials and inexpert by showing the expert to lack the appropriate credentials to be considered experienced.

Control: In the control condition of the cross examination there was no manipulation to attest to the credibility of the expert witness.

**Pilot Study**

A pilot study was conducted in order to verify that the different cross examination scripts produced appropriate changes in the perception of credibility of the expert witness. Multiple comparisons of the means as well as a Univariate analysis of variance (ANOVA) with Post Hoc and LSD tests were conducted to examine the effect the manipulated dimensions of credibility

(trustworthiness/expertise) had on the participants' overall perception of the expert witness's credibility. A significance level of (α) = .05 was used.

The first manipulated variable was the trustworthiness dimension of credibility. Analysis found a significant main effect of the trustworthy manipulation ($F_{1,19} = 7.01$, $p < .05$, $\eta_p^2 = .305$). Participants perceived ratings of Plaintiff expert witness's trustworthiness were significantly lower in the low trustworthiness condition (M = 4.05, SD = 2.71) and in the low trustworthiness and low expertise condition (M = 3.65, SD = 2.71) than in conditions where trustworthiness was not manipulated, control condition (M = 5.77, SD = .91) and the low expertise condition (M = 5.7, SD = .93). The overall fit of the model was R^2 = .184, which shows significance amount of the results was explained by the main effect manipulation.

The other manipulated variable was the expertise dimension of credibility. Analysis found no significant main effect of the expertise manipulation ($F_{1,19} = 1.26$, $p > .05$, $\eta_p^2 = .073$). Participants perceived ratings of the Plaintiff expert witness's expertise were not significantly lower in the low trustworthiness condition (M = 5.33, SD = .817) than in conditions where expertise was not manipulated, control conditions (M = 6.3, SD = 1.68) and the low trustworthiness condition (M = 5.5, SD = 1.84). The overall fit of the model was R^2 = -.056, which shows that the main effect manipulation was not significant. Although the expertise condition was not significant, a comparison of the means showed that the manipulation was in the right direction. Further, not all of the expertise factors from Brodsky's (2011) Expert Witness Credibility Scale were used on the Pilot Study. All expertise factors were therefore added to the main study.

The Dependent Variable of the Likelihood of Defendant Negligence was also analyzed. Analysis determined that the trustworthiness main effect was significant on the likelihood

participants found the Defendant "Not Negligent" ($F_{1,19} = 18.383$, $p < .05$). Participants in the low trustworthiness condition were less likely to side with the Plaintiff and more likely to find the Defendant "Not Negligent" (M = 2.4, SD = .548) compared to the control condition (M = 3.0, SD = .707). Analysis also determined there was a significant main effect of expertise on the likelihood jurors found the Defendant "Not Negligent" ($F_{1,19}= 15.05$, $p < .05$). Participants in the low expertise condition were less likely to side with the Plaintiff and more likely to find the Defendant "Not Negligent" (M = 2.5, SD = .707) compared to the control condition (M = 3.0, SD = .70). Overall fit of the model was R^2 = .607, which shows significant amount of the results was due to the manipulation.

The Dependent Variable of overall perceived Plaintiff expert witness credibility was also analyzed. Analysis found no significant effect of either trustworthiness ($F_{1,19} = 2.90$, $p > .05$) nor expertise ($F_{1,19} = 1.34$, $p > .05$). While there was no significant difference in the low trustworthiness condition (M = 5.45, SD = 1.17) nor in the low expertise condition (M = 5.72, SD = 1.08) compared to the control condition (M =6.15, SD = .97), evidence in the analysis showed support for the hypothesis, although weak, was in the right direction. In addition, the sample size of the Pilot Study was small. A larger sample size was used in the main study.

**Participants**

Participants in this study included 128 college students (M age = 19.41, SD = 2.075, range = 18-37) solicited from a medium sized Midwestern university. Of the participants, 70 (54.7%) were female, 58 (45.3%) were male. 101 (78.9%) were Caucasian, 7 (5.5%) were African American, 7 (5.5%) were Hispanic, 9 (7%) were Asian, and 4 (3.1%) classified themselves as "Other". Of the participants, 121 (94.5%) were single, 2 (1.6%) were married, and 5 (3.9%) were living with a partner.

## Dependent Variable Measure

### *Likelihood of Negligence*

Participants' interpretation or acceptance of facts based on the expert witness' testimonies was assessed with a 4-point Likert scale asking participants to determine the likelihood of negligence of the Defendant in the case. The question read: Based on the testimonies you heard, how likely do you believe the defendant, Coleman Lumber and Ware, Inc., is negligent? Participants had the options of "Not at all likely," "Somewhat unlikely," "Somewhat likely," and "Very likely."

### *Expert Witness Credibility*

**The Witness Credibility Scale**. Expert witness's traits (e.g., Confidence; Kindness; Honesty) were scored on a 9-point Likert scale (e.g., Uninformed = 1 and Informed = 9; Unreliable = 1 and Informative =9). Items were based off Brodsky's (2010) Expert Witness Credibility Scale (Appendix C). The Witness Credibility Scale (WCS) consists of 20 paired adjectives with each of the four factors having five items. The scale consisted of four factor that are concerned with expert witness credibility; trustworthiness, expertise, confidence and likeability. Sample items for each trait include: trustworthy - "dishonest/honest," expertise - "uneducated/educated," confidence – "shaken/poised," likeability – "unkind/kind." The Witness Credibility Scale as a whole is reliable ($\alpha = .95$). In addition, each subscale is individually reliable (trustworthiness, $\alpha = .93$; expertise, $\alpha = .86$; confidence, $\alpha = .89$; likeability, $\alpha = .86$). Participants were instructed to rate the expert witness for the Plaintiff as well as the expert witness for the Defense on each of the traits in the scale.

Results for expert witness overall credibility, as well as the four dimensions of credibility, were scored based off of Brodsky's (2011) Expert Witness Credibility Scale.

Participants rated their perception of credibility for both the Plaintiff's Expert Witness (M= 5.6, SD= 1.21) and the Defense's Expert Witness (M=6.46, SD= 1.16). The α coefficients have been reported for each expert witness for each subscale. The α coefficients for the Plaintiff expert witness were as follows: trustworthiness (.90), expertise (.76), confidence (.67), and likeability (.83). The coefficients for the α Defense expert witness were as follows: trustworthiness (.88), expertise (.67), confidence (.80), and likeability (.86). The four subscales were totaled for an overall credibility score. For overall credibility in this study the Plaintiff expert witness, $\alpha = .92$ and the Defense expert witness $\alpha = .93$. In the present study, an analysis of trustworthiness and expertise against the combined unit of the four dimensions for a rough overall credibility score was conducted. Also, trustworthiness and expertise were compared and analyzed against each of the four subscale dimensions (trustworthiness, expertise, likeability, and confidence) of expert witness credibility.

# CHAPTER 4: RESULTS

## Effects of Expert Witness Credibility

To investigate the impact of credibility on the dependant measures, a factorial Univariate analysis (ANOVA) with LSD post hoc test was conducted. The analysis was performed in order to test the hypotheses and determine if the main effects of trustworthiness and expertise had an effect on participants' assessment of Defendant Negligence as well as participants' perception of the expert witness's credibility. Further analysis was used to determine whether or not an interaction effect occurred. The independent variables were the trustworthiness dimension and the expertise dimension of expert witness credibility. The first dependent variable was the participants' assessment of the likelihood of Defendant negligence; either they found the Defendant "Not at all likely," "Somewhat unlikely," "Somewhat likely," and "Very likely" Negligent. The second dependent variable of perceived expert witness credibility was based off ratings from Brodsky's (2010) Expert Witness Credibility Scale. A significance level of ($\alpha$) = .05 was used to determine acceptance of the hypotheses. Ratings were analyzed from a unitary scale giving a rough overall perception of credibility as well as from each of the four sub-scales giving a perception of each, trustworthiness, expertise, likeability, and confidence. Follow up tests were conducted to assess the differences among the Independent variables means. Because variance among the groups was large, Dunnett's C, which does not assume equal variances among the groups, was used to complete these tests. (Tables 1, 2, 3)

The first hypothesis looked at the main effect of credibility (low trustworthiness and low expertise) on the participants' verdict decision of "Likelihood of Defendant Negligence," specifically in the form of a favorable verdict for the Plaintiff expert witness. Hypothesis 1a was that when the Plaintiff expert witness was shown to be low in trustworthiness, participants would

be less likely to determine a favorable verdict for the Plaintiff, and thus find the Defendant "Not Negligent". Analysis indicated significant differences in the likelihood of Negligence when the Plaintiff expert witness was shown to have low trustworthiness ($F_{1,127} = 10.75$, $p < .05$, $\eta_p^2 = .08$). Thus, hypothesis 1a was supported. Specifically, participants were less likely to find a verdict favorable with Plaintiff expert witness's testimony when the Plaintiff expert witness was show to have low trustworthiness (M = 2.35, SD = .66) than in the control condition when there was no attack on the trustworthiness of the Plaintiff expert witness (M = 2.70, SD =.68).

Hypothesis 1b was that when the Plaintiff expert witness was shown to be low in expertise, participants would be less likely to determine a favorable verdict for the Plaintiff and find the Defendant "Not Negligent." Analysis indicated significant differences in likelihood of Negligence when the Plaintiff expert witness was shown to have low expertise ($F_{1,127} = 7.21$, $p < .05$, $\eta_p^2 = .06$). Thus, hypothesis 1b was supported. Specifically, participants were significantly less likely to find a favorable verdict with Plaintiff expert witness's testimony and find the Defendant "Not Negligent" when the Plaintiff expert witness was show to have low expertise (M = 2.42, SD = .61) than in the control condition when there was no attack on the expertise of the Plaintiff expert witness (M = 2.70, SD =.68).

Analysis of Hypothesis 1 determined that both the main effect of trustworthiness and the expertise influenced the participants' verdicts. When either the trustworthiness or the expertise of the Plaintiff's expert witness was attacked, participants were less likely to find in favor of the Plaintiff and find the Defendant "Not Negligent." Further, the overall fit of the model was R^2 = .11. This shows significance amount of the results was explained by the main effect manipulation.

The second hypothesis assessed the main effects of credibility (low trustworthiness and low expertise) on participants' perception of the Plaintiff expert witness's credibility based on their combined overall credibility. Hypothesis 2a predicted that when the Plaintiff expert witness was shown to have low trustworthiness, participants would perceive the expert witness lower in an overall combined credibility rating based on Brodsky's (2010) Expert Witness Credibility Scale. Analysis indicated significant differences in participants attribution of credibility when the Plaintiff expert witness was shown to have low trustworthiness ($F_{1,126}$= 9.19, $p < .05$, $\eta_p^2 = .07$). Specifically, participants were more likely to rate the Plaintiff expert witness lower in overall credibility when he was shown to have low trustworthiness (M = 5.32, SD = 1.17) than in the control condition where there was no attack on the trustworthiness of the expert witness (M = 5.91, SD = 1.34).

Hypothesis 2b predicted that when the Plaintiff expert witness was shown to have low expertise, participants would perceive the expert witness lower in overall combined credibility, based on Brodsky's (2010) Expert Witness Credibility Scale. Analysis indicated no significant differences in participants' attribution of credibility when the Plaintiff expert witness was shown to have low expertise ($F_{1,126}$ = .09, ns, $\eta_p^2$ = .001). Thus, hypothesis 2b was not supported. Specifically, participants were not significantly more likely to rate the Plaintiff expert witness lower in overall credibility when he was shown to have low expertise (M = 5.89, SD = 1.17) than in the control condition where there was no attack on the expertise of the expert witness (M = 5.91, SD = 1.34).

Analysis of Hypothesis 2 determined that the main effect of trustworthiness was significant to overall perceptions of Plaintiff expert witness credibility; however the main effect of expertise was not significant to overall perceptions of Plaintiff expert witness credibility. Only

in conditions where the trustworthiness of the Plaintiff expert witness was attacked, did participants perceive the Plaintiff expert witness to have lower credibility. Further, the overall model fit was R^2 = .05.

The third hypothesis assessed the main effects of credibility (low trustworthiness and low expertise) on participants' perception of the Plaintiff expert witness's credibility in each of the separate dimensions of credibility (trustworthiness, expertise, likeability, and confidence). Hypothesis 3a predicted that when the Plaintiff expert witness was shown to have low trustworthiness, participants would perceive the expert witness lower in the trustworthiness dimension, but have no effect on the ratings of the other dimensions of credibility (expertise, likeability, confidence), based on Brodsky's (2010) Expert Witness Credibility Scale. Analysis indicated significant differences in participants attribution of credibility in the trustworthiness dimension when the Plaintiff expert witness was shown to have low trustworthiness ($F_{1,126}$= 30.93, ns, $\eta_p^2$ = .91). Specifically, participants were more likely to rate the Plaintiff expert witness lower in the trustworthiness dimension of credibility when he was shown to have low trustworthiness (M = 4.21, SD = 1.81) than in the control condition where there was no attack on the trustworthiness of the expert witness (M = 5.76, SD = 1.6).

Further, analysis indicated no significant difference when the expert witness was shown to have low trustworthiness in the expertise dimension ($F_{1,126}$= 2.41, ns, $\eta_p^2$ = .02), the likeability dimension ($F_{1,126}$= .09, ns, $\eta_p^2$ = .001), or the confidence dimension ($F_{1,126}$= 2.51, ns, $\eta_p^2$ = .02). Specifically, participants were not significantly more likely to rate the Plaintiff expert witness lower in the expertise dimension when he was shown to have low trustworthiness (M = 5.48, SD = 1.6) than in the control condition when there was no attack on the trustworthiness of the expert (M = 5.95, SD = 1.64). Participants were not significantly more likely to rate the

Plaintiff expert witness lower in the likeability dimension when he was shown to have low trustworthiness (M = 6.12, SD = 1.38) than in the control condition when there was no attack on the trustworthiness of the expert (M = 5.90, SD = 1.26). And participants were not significantly more likely to rate the Plaintiff expert witness lower in the confidence condition when he was shown to have low trustworthiness (M = 5.57, SD = 1.10) than in the control condition when there was no attack on the trustworthiness of the expert (M = 6.08, SD = 1.5). Thus hypothesis 3a was supported for the main effect of trustworthiness.

Hypothesis 3b predicted that when the Plaintiff expert witness was shown to have low expertise, participants would perceive the expert witness lower in the expertise dimension, but have no effect on the ratings of the other dimensions of credibility (trustworthiness, likeability, confidence), based on Brodsky's (2010) Expert Witness Credibility Scale. Analysis indicated no significant differences in mock jurors' attribution of credibility in the expertise dimension when the Plaintiff expert witness was shown to have low expertise ($F_{1,126}$ = .25, ns, $\eta_p^2$ = .001). Thus, hypothesis 3b was not supported. Specifically, participants were not significantly more likely to rate the Plaintiff expert witness lower in the expertise dimension of credibility when he was shown to have low expertise (M = 5.80, SD = 1.26) than in the control condition where there was no attack on the expertise of the expert witness (M = 5.95, SD = 1.64).

However, analysis did also indicated no significant difference when the expert witness was shown to have low expertise in the trustworthiness dimension ($F_{1,126}$= .09, ns, $\eta_p^2$ = .001), the likeability dimension ($F_{1,126}$= .05, ns, $\eta_p^2$ = .00), or the confidence dimension ($F_{1,126}$= 2.18, $p > .05$, $\eta_p^2$ = .02). Specifically, participants were not significantly more likely to rate the Plaintiff expert witness lower in the trustworthiness dimension when he was shown to have low expertise (M = 5.88, SD = 1.41) than in the control condition when there was no attack on the

expertise of the expert (M = 5.76, SD = 1.60). Participants were not significantly more likely to rate the Plaintiff expert witness lower in the likeability dimension when he was shown to have low expertise (M = 6.24, SD = 1.30) than in the control condition when there was no attack on the expertise of the expert (M = 5.90, SD = 1.26). And participants were not significantly more likely to rate the Plaintiff expert witness lower in the confidence condition when he was shown to have low expertise (M = 5.60, SD = 1.23) than in the control condition when there was no attack on the expertise of the expert (M = 6.08, SD = 1.50).

Analysis of Hypothesis 3 determined that the main effect of trustworthiness was significant to the participants' perception of Plaintiff expert witness trustworthiness; however the main effect of trustworthiness was not significant to participants' ratings of the other separate dimensions of expert witness credibility (expertise, likeability, and confidence). Therefore, trustworthiness was shown to act independently of the other three dimensions of expert witness credibility. On the other hand, the main effect of expertise was not significant to the participants' perception of Plaintiff expert witness expertise; nor was the main effect of expertise significant to participants' ratings of the other separated dimensions of expert witness credibility (trustworthiness, likeability, and confidence. Thus, showing the Plaintiff expert witness to be low in expertise does not affect how participants' perceive the expertise, trustworthiness, likeability, or confidence of that witness.

The fourth hypothesis looked at the interaction effect of the two main effects, trustworthiness and expertise in relation of Defendant Negligence. Hypothesis 4 predicted an interaction effect would occur in situations where both the trustworthiness and the expertise of the Plaintiff expert witness was attacked, resulting in a less verdicts favorable to the Plaintiff and a greater likelihood of the Defendant found "Not Negligent" than when either trustworthiness or

expertise was shown to be low on its own. Analysis indicated no significant interaction effect in conditions where both the trustworthiness and expertise of the expert witness were attacked ($F_{1,127}$ = .12, ns, $\eta_p^2$ = .001). Although no interaction effect occurred, there was a stronger mean additive effect on compliance when the Plaintiff expert witness was shown to be both low in trustworthiness and low in expertise (M = 2.00, SD = .683) than when the Plaintiff expert witness was shown to either have just low trustworthiness (M = 2.35, SD = .661) or low expertise (M = 2.42, SD = .614) on its own.

Analysis of Hypothesis 4 determined that while the main effects of both trustworthiness and expertise produced a significant effect on participants' assessment of the likelihood of Negligence of the Defendant, no additional effect was produced in conditions where both main effects were present. While a lower average likelihood occurred in conditions where both trustworthiness and expertise were shown to be low than in conditions where only one was shown to be low, this average was not greater than expected.

The fifth hypothesis looked at the interaction effect of the two main effects, trustworthiness and expertise in terms of overall perceived expert witness credibility. Hypothesis 5 predicted an interaction effect would occur in situations where both the trustworthiness and the expertise of the Plaintiff expert witness was attacked, resulting in lower ratings of perceived Plaintiff expert witness credibility than when either trustworthiness or expertise was shown to be low on its own. Analysis indicated no significant interaction effect in conditions where both the trustworthiness and expertise of the expert witness were attacked ($F_{1,126}$ = .03, ns, $\eta_p^2$ = .00). Although no interaction effect occurred, there was a stronger mean additive effect in perceptions of Plaintiff expert's overall credibility when he was shown to be both low in trustworthiness and low in expertise (M = 5.22, SD = .93) than when the Plaintiff expert witness was shown to either

have just low trustworthiness (M = 5.32, SD = 1.17) or low expertise (M = 5.89, SD = 1.17) on its own.

Analysis of Hypothesis 5 determined that while the main effects of trustworthiness produced a significant effect on participants' perception of overall expert witness credibility, no additional effect was produced in conditions where both main effects were present. Though a lower average likelihood occurred in the low trustworthiness conditions, neither the low expertise conditions nor the interaction condition were significant. While the low trustworthiness and low expertise condition produced a lower average rating of expert witness credibility than the other conditions, this average was not greater than expected.

The sixth hypothesis looked at the interaction effect of the two main effects, trustworthiness and expertise in terms of participants' perceived expert witness credibility in the trustworthiness dimension and expertise dimension. Hypothesis 6 predicted an interaction effect would occur in situations where both the trustworthiness and the expertise of the Plaintiff expert witness was attacked, resulting in lower ratings of perceived Plaintiff expert witness trustworthiness than in the condition where trustworthiness was shown to be low on its own and lower ratings of perceived Plaintiff expert witness expertise than in conditions where expertise was shown to be low on its own. Analysis indicated no significant interaction effect on the trustworthiness dimension in conditions where both the trustworthiness and expertise of the expert witness was attacked ($F_{1,126} = .01$, ns, $\eta_p^2 = .001$). Specifically, participants did not significantly perceive the Plaintiff expert witness to have lower trustworthiness when the expert witness was shown to be both low in trustworthiness and low in expertise (M = 4.26, SD = 1.6) than when the Plaintiff expert witness was shown to just have low trustworthiness (M = 4.21, SD = 1.81). Analysis also indication no significant interaction effect on the expertise dimension in

conditions where both the trustworthiness and expertise of the expert witness was attacked ($F_{1,126}$ = .13, ns, $\eta_p^2$ = .00). Hypothesis 6 was not supported.

Analysis of Hypothesis 6 determined that while the main effects of trustworthiness produced a significant effect on participants' perception expert witness trustworthiness, no additional effect was produced in conditions where both main effects of trustworthiness and expertise were present. Conditions where the expert witness was shown to have low expertise did not significantly affect participants' perception of expert witness expertise. Further, no additional effect was produced in conditions where both main effects of trustworthiness and expertise were present on participants' perception of the expert witness' expertise.

# CHAPTER 5: DISCUSSION AND CONCLUSION

## Introduction of Findings

The credibility of an expert witness can be an important factor to a juror in determining whether to accept an expert witness's testimony or not and in deciding the outcome verdict of a trial. Prior research has shown there to be a strong influence of the credibility of the expert witness on jurors' attitudes and decision-making (Brodsky et al., 2010) (Brodsky et al., 2009) (Piotrowski & Prude, 2004) (Goldstein, 1988). Further, the two most influential dimensions of expert witness credibility that have been shown to have the strongest effect on attitudes and behavior are trustworthiness and expertise (Pornpitakpan, 2004). The primary purpose of the current study was to continue to investigate the concept of expert witness credibility and the relationship between the four dimensions of expert witness credibility composed by Brodsky (2010). This study focused on the trustworthiness and expertise dimensions of credibility. These two dimensions of credibility were tested in order to determine their effect on participants' verdict decision, participants' perception of the expert witness' overall credibility, and their effect on participants' perceptions of the other dimensions of credibility.

Results from the study extended the research for the construct of expert witness credibility by the following findings; attacks on both trustworthiness and expertise produce an effect on participants' verdict decisions, trustworthiness should be viewed independently from the other three dimensions of credibility, and the act of labeling a witness as an expert can affect the perception of overall expertise and overall credibility of an expert witness.

### *Trustworthiness and Expertise Effects on the Verdict*

Findings from the study indicated that when the trustworthiness or expertise of an expert witness was attacked, participants' attitudes and behaviors were affected in terms of verdict

decision. These findings are consistent with the current research and further support the fact that sources high in trustworthiness and expertise have been shown to be more persuasive than sources lacking trustworthiness and expertise (Buckley, 1989; Hurwitz, Miron, & Johnson, 1992; McGinnes, 1973; Pornpitakpan, 2004; Sternthal et al., 1973) and having trustworthiness and expertise elicit more positive attitude change and induce more behavioral compliance (Lafferty & Goldsmith, 1999; Pornpitakpan, 2004). This study takes these findings a step further when it shows that the results also apply to expert witnesses specifically in the trustworthiness and expertise dimensions of credibility. Further, unlike past research which looked at how enhancing trustworthiness and expertise can induce behavioral change; this study showed that demonstrating a source to be low in trustworthiness and expertise each had an effect on behavioral compliance in terms of participants' verdict decision.

In the study, when either the trustworthiness or the expertise of the expert witness was attacked and shown to be low, participants' assessment of Likelihood of Defendant Negligence was significantly affected. Participants were significantly less likely to side with the Plaintiff and thus more likely to decide upon a Defendant verdict of Not Negligent. Thus, the trustworthiness and expertise dimensions of credibility are each strong enough to affect how participants' viewed the message the expert witness was presenting. This demonstrates that participants' rely on more than just the facts in the testimony of an expert witness. Qualities of trustworthiness and expertise are important factors jurors may take into consideration when comparing the testimony of two opposing witnesses and in determining their verdict decision. Further, while there is clear evidence attacking either the trustworthiness or the expertise of a witness affects the verdict decision, attacking both the trustworthiness and the expertise of the expert witness provides an additive effect, resulting in a greater likelihood of behavior compliance. Therefore, in a cross

examination, an attorney should attack both the trustworthiness and the expertise of the opposing expert witness. By showing both the trustworthiness and the expertise of the opposing witness to be low, the attorney will have a greater chance of a favorable verdict than attacking either the trustworthiness or the expertise of the expert witness would provide in isolation.

### *Trustworthiness as an Independent Dimension*

Beyond examining the role trustworthiness and expertise had on participants' behaviors, the study also analyzed the role these dimensions had on participants' attitudes towards the expert witness. The study looked at participants' perception of the expert witness' overall credibility, as single scale derived from the four dimensions of Expert Witness Credibility (Brodsky, 2010). While an attack of both the trustworthiness and expertise of the expert witness had a significant effect on participants' behavior in the form of verdict decision, findings showed that only in the low trustworthiness conditions did it produce a change on participants' attitudes towards overall credibility. Participants' significantly rated the expert witness lower in overall credibility only in conditions where the trustworthiness of the expert was shown to be low. When the expert witness was shown to be low in expertise, there was not a significant change in participants' overall perception of said expert witness's credibility.

Further, the low trustworthiness and the low expertise dimensions were analyzed against each of the four separate subscales of expert witness credibility, trustworthiness, expertise, likeability, and confidence. These analyses indicated that when the expert witness was shown to be low in trustworthiness participants rated the witness lower on the perceived trustworthiness sub-scale. However, being shown to have low trustworthiness did produce a significant effect on the other three dimensions of credibility (expertise, likeability, and confidence). In contrast,

when compared against each dimension of credibility, low expertise did not significantly change participants' attitudes on any of the credibility dimensions.

These findings suggest that, as a dimension, trustworthiness acts independently of the other three dimensions from the expert witness credibility scale. These findings disagree with the claim Brodsky (2010) makes with his Expert Witness Credibility Scale research. Brodsky (2010) argues that expert witness credibility is broken down into four subsections, trustworthiness, expertise, likeability, and confidence. Although claiming expert witness credibility is decomposed into four separate components, the Expert Witness Credibility Scale (Brodsky, 2010) is used as a unidiminsional scale, merging the four dimensions to give a rough overall credibility measure.

The current study provides evidence that the four dimensions of credibility should not be combined into one unitary scale. Rather, trustworthiness should be treated independently from expertise, likeability, and confidence. Because low trustworthiness manipulations only had a significant effect on participants' perceptions of the trustworthiness dimension, and did not produce a significant effect on the other three dimensions of expert witness credibility, trustworthiness should be treated as a separate scale. When rating an expert witness in credibility, trustworthiness should be scored separately in order to produce more accurate results. Although this study only provides evidence to support the independence of the trustworthiness dimension, further research should compare all four dimensions of credibility in order to determine if the other dimensions should be treated independently as well.

Another implication from these findings is that not only did low trustworthiness produce an effect on the trustworthiness dimension sub-scale of credibility, but also had an effect on the overall ratings of credibility. However, low expertise does not produce an effect on the expertise

sub-scale of credibility or an effect on the overall ratings of credibility. When the trustworthiness dimension is combined in a unitary credibility scale, changes in trustworthiness scores produce an effect on overall credibility. This finding also suggests that trustworthiness should be treated as an independent sub-scale of expert witness credibility. Further, since low trustworthiness does effect the overall credibility ratings when the trustworthiness dimension is included in the overall credibility scale, this suggests that trustworthiness is an important factor participants' considered in determining their attitudes towards the expert witness. Because low trustworthiness is strong enough to be able to impact the combined overall credibility, it is worth questioning whether or not certain sub-scales of the expert witness credibility are more important than others. Low trustworthiness has been found to have a strong influence on perceptions of overall expert witness credibility whereas low expertise does not. However, in order to further the construct more studies should be done in order to compare all four dimensions of expert witness credibility. Not only to look for independence, but also to determine if some sub-dimensions of expert witness credibility are more important than the others. Further, it is important for attorneys to keep in mind the effect trustworthiness has on jurors' attitudes and perceptions of overall trustworthiness and overall credibility when prepping an expert for trial as well as in the expert witness examinations.

### *The Effect of Labeling a Witness as an "Expert" Witness*

Finally, an interesting find from this study was that the while the main effect of expertise was strong enough to produce a verdict effect, attacking the expertise of the expert witness did not change participants' perceptions of overall expertise or overall credibility of the expert witness. Diminishing the accomplishments and credentials of the expert witness did not diminish the perception that he was an expert. This finding occurred perhaps because the expert witness

was initially labeled as an expert. Simply labeling a witness as an expert may make jurors' perceive the witness to still possess expert qualities and thus still be an expert even when his credentials have been attacked.

Research has found labeling to have a strong effect on individuals' actions and behaviors. Labeling theory posits, "that societal reaction in the form of label-ing or official typing, and consequent stigmatization, leads to an altered identity in the actor, necessitating a reconstitution of self"' (Scimecca, 1977). In other words, simply labeling a witness as an expert can result in others accepting the witness in the role of an expert and thus expecting the witness to possess more expertise qualities and behaviors. If labeling is strong enough to affect the thoughts of the individual being labeled, it would make sense that it could also affect people's attitudes towards a labeled individual. Further, research on consumers has shown that labeling produces a significant effect on consumers' attitudes towards the product. For example, using hang tags with environment friendly labels resulted in participants eliciting a more favorable opinion toward the item and increasing the likelihood of purchase than when the item did not have a label (Hyllegard, Yan, Paff, A& Lee, 2012). Since the act of having a label can change individuals' attitudes towards something, in the case of an expert witness, the fact that he is called an "expert" witness may be enough to make participants perceive him to be an expert, even if the basis for the expertise is attacked later.

The manipulated attacks on expertise employed in the cross examination of this study may not have been strong enough to override the potential weight the "expert" label had in terms of participants' perceptions of expertise and credibility based off of Brodsky's (2010) Expert Witness Credibility Scale. Further, research has shown that characteristics of expertise have to be large in order to create an effect on perception (Pornpitakpan, 2004). When manipulating

expertise, it can be difficult to show the expert to be without also showing they are lying which would be a dimension of trustworthiness. Therefore, more attacks may have to be used during a cross examination to show the expert to be low in expertise than it would require to show the expert to be low in trustworthiness and thus have an effect on the perceptions of their credibility. However, in trial, the ultimate concern is with the verdict. The goal of an attorney is to produce a favorable verdict and attacking expertise did change participants' attitude and behavioral compliance in terms of the verdict decision. Both showing the expert witness to be low in trustworthiness and low in expertise had a significant effect on participants' verdict positions. Moreover, when both the trustworthiness and expertise of an expert witness were attacked, there was found to be an even stronger net effect on verdict decision. So, while perceived credibility is important and attacks on the witness's expertise may not effect jurors' perceptions of the expert's credibility, the verdict is the ultimate goal, and attacking the expertise of an expert witness is important in order to sway jurors' verdict decisions. Therefore, the trustworthiness and expertise of an expert witness are both important during a trial.

**Theoretical Contributions**

The current study provided advancement to the construct of expert witness credibility. Expert witness credibility consists of four dimensions. Previous research has identified trustworthiness and expertise as the most common dimensions of credibility Buckley, 1989; Hurwitz, Miron, & Johnson, 1992; Lafferty & Goldsmith, 1999; Linz & Penrod, 1984; McGinnies & Ward 1980; Ohanian, 1990; Pornpitakpan, 2004). Further, research by Brodsky (2010) suggests expert witness credibility is really decomposed into four dimensions but combined as a unitary scale for a rough overall credibility score. The current study looked specifically at the trustworthiness and expertise dimensions of credibility as determinants of trial

outcomes and factors of expert witness credibility. The findings from the study provide support to the importance of expert witness credibility. First, they illustrate the effect credibility has when the expert is shown to be negative, rather than positive, in two dimensions. Results found that low trustworthiness and low expertise both produce significant effects on participants' verdict decision. Thus, attacking either the trustworthiness or the expertise of the expert witness will yield a behavioral change in the jury and attacking both the trustworthiness and expertise will produce a stronger effect on verdict decisions.

This study provides a theoretical contribution by advancing the construct of expert witness credibility. Brodsky (2010) found that there are four sub-dimensions of Expert Witness Credibility which he joined to produce a single score on his overall Expert Witness Credibility Scale. However, finding from this study provide evidence that the trustworthiness dimension of expert witness credibility should be treated independently from the other three sub sections of expert witness credibility (expertise, likeability, and confidence). Because low trustworthiness had an affect only on the trustworthiness dimension of credibility, this finding provides evidence that trustworthiness should not only be treated independently, but should also be scored as its own scale in order to improve the accuracy of expert witness credibility ratings. If the sub-scales of expert witness credibility act in combination to produce an overall credibility rating as Brodsky suggests, then attacking the trustworthiness dimension of credibility should have produced an effect on the other three sub-scales of expert witness credibility as well. This was not the case. Further, when the trustworthiness dimension of expert witness credibility was scored with the other four dimensions in a unitary overall measure of credibility, it produced an effect on participants overall credibility ratings of the expert witness' credibility. Thus, if trustworthiness was removed from the unitary scale, the witness' overall credibility score might

not be affected. Thus suggesting a more accurate overall score of expert witness credibility could be achieved if the trustworthiness dimension is scored independently from the other dimensions of expert witness credibility.

Further, in the case of an expert witness, trustworthiness affected participants' perceptions of the expert witness' overall credibility and their overall trustworthiness while the expertise dimension did not affect participants' perceptions of overall credibility or overall expertise of the witness. This finding suggests that not only should trustworthiness act as an independent dimension, but all four of the dimensions of expert witness credibility might be distinct and should be scored independently. Moreover, since the findings exhibited trustworthiness to have an effect the expert witness' overall credibility while the expertise dimension did not, some of the sub-scales of expert witness credibility may be more important than others.

The current study also provides advancement to the Heuristic Systematic Model. The model posits that when information in a message is important yet ambiguous, heuristic processing can bias systematic processing (Chaiken & Mahsawaran, 1994). Further, one way this can be accomplished is through the credibility heuristic. The perceived credibility of the source can influence the message resulting attitude and behavior changed of the receiver (Chaicken & Mahsawaran, 1994). Results from the study found that both the trustworthiness and expertise of an expert witness had an effect on the participants' verdict decision. Thus, both the trustworthiness dimension and the expertise dimensions of credibility each have been shown to act as heuristics jurors may use in order to help them process the important yet ambiguous message in the testimony of the expert witness.

This study also provides real world implications for the field of law. During a cross examination, the attorney tries to show the jury that the opposing expert witness's testimony is insufficient. One way they can do this is by showing the jury the expert witness to be low in credibility. Study findings show that perceptions of lower overall credibility can be achieved by showing the expert witness to be low in trustworthiness. However, the main goal of an attorney in a trial is to win the case by drawing a favorable verdict from the jury. The study found that verdict decision is effected by both the trustworthiness and expertise dimensions. In order to increase the likelihood of a favorable verdict, attorneys should attack both the trustworthiness and the expertise of the expert witness in the cross examination.

Previous research on expert witness credibility has consisted of determining that the trustworthiness and expertise dimensions have an effect on the credibility of the expert witness and that these dimensions affect jurors' perception of expert witness credibility. The current study takes the first step in looks at just two of the dimensions. Further, it provided insight to the effects that occur in jurors' attitudes and behaviors when the credibility of the expert witness is shown to be lacking rather than present. Finally, the study compared trustworthiness and expertise against all four credibility dimensions, thus finding that trustworthiness should be treated independently and as its own scale. Overall, this study advances the expert witness credibility construct, provides pragmatic implications to the field, and calls for future research in the construct of expert witness credibility.

**Pragmatic Implications**

Findings from the current study have practical implications for witness preparation and attorney examinations. Trustworthiness is an important factor in the overall credibility of an expert witness and can affect the outcome of a case. Therefore, it is important that expert

witnesses provide honest testimonies both in the actual trial and in their depositions. Beyond being trustworthy another important part of witness preparation and the direct examination should be to emphasize the credentials and expertise of the expert witness. Results found that attacking an expert witness's expertise did not affect the participants' perception of the witness's expertise or overall credibility. It seems that simply labeling an expert as an expert is enough to override negative credentials. However, having low expertise does affect the verdict decision. Therefore, during witness preparation and the direct examination, it is important to highlight the credentials of the expert witness. Making sure that the witness knows how to come across as trustworthy and as an expert will help with the acceptance of the expert witness's testimony.

Findings also have practical implications for attorneys to use during their cross examination. Attacking and showing the trustworthiness and expertise of the opposing expert witness to be low is important. This also means that attorneys have to be careful in the direct examination that they do not put their expert witnesses in a position or make them say something that the opposing attorney can attack them on during the cross examination, or make the expert witness appear untrustworthy or inexpert. On the other hand, during a cross examination, the attorney should be looking for ways to show the expert witness to be low in trustworthiness and expertise by attacking these dimensions of credibility. Although both low trustworthiness and low expertise will affect the verdict, by attacking both attorneys will increase their chance o a favorable verdict.

**Limitations**

There are several limitations to the current study. First, participants for this study were all from a Midwestern university and mostly a younger age demographic. Thus, the population from the study may not be representative of the average jury pool from every jurisdiction. As such,

caution may need to be used when generalizing the findings from this study to every jury pool. Second, participants in this study were only exposed to a voice recording of the expert witness testimonies rather than viewing the case in a live courtroom or mock courtroom setting. Third, the study only included two opposing experts, whereas a real case may have many expert witnesses testifying which could complicate jurors attitudes and behaviors. Further, both expert witnesses were males. This study does not take into account any gender differences that could occur in juror decision making. Also, only one expert witness was shown to lack credibility. Future research could be done to in order to understand the implications that occur when multiple opposing expert are shown to be low in expertise or trustworthiness. Also, the current study focused on a negligence case where the expert witnesses were engineers. For generalization purposes, the study should be replicated in different testimony concepts with different types of expert witnesses.

**Future Research**

Future studies can be conducted in order to address to the limitations. The study could be replicated with different testimony concepts, different types and genders of experts, expert witnesses manipulated low in credibility from both the Plaintiff and the Defense side, with different demographic populations, and in a live courtroom setting. Replicating the study in these different contexts would help generalize the findings of the current study to the broad juror population. It could also investigate whether expert witness credibility is more important in one type of case over another.

Another future direction would be to further compare the credibility dimensions of trustworthiness and expertise against each other as well as against the other dimensions of expert witness credibility. Trustworthiness has been found to be an independent dimension. Comparing

the effect of each dimensions could further the expert witness credibility theory by determining the relationship among all four sub-scales. Further, it could determine if one of the dimensions of is more important in determining expert witness credibility than another. The different dimensions of expert witness credibility have been shown to have an effect on juror attitudes, perceptions, and decision making. While this study compared the trustworthiness and expertise dimension of credibility against the four sub-scales of expert witness credibility, research should further asses the comparison of all four credibility dimensions against all four sub-scales.

This study only looked at participants' individual attitudes and behaviors quantitatively. Another direction of research would be to do a mixed methods studying looking at how showing an expert witness to be low in trustworthiness or low in other dimensions of credibility effects jury deliberation. Findings would move the research beyond individual attitudes to group attitudes and decision-making. It would also make it more applicable to a real world jury context.

Overall, the credibility of an expert witness can be an important factor in jurors' attitudes and decision-making. Specifically, expert witnesses who are shown to be low in trustworthiness or low in trustworthiness and expertise will affect jurors' acceptance of the expert witness's case testimony and affect their verdict decision. Showing an expert witness to be low in trustworthiness will affect jurors' attitudes toward the expert witness, perceiving them to be lower in overall credibility and lower in overall trustworthiness and thus should be treated independently.

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# APPENDICES

## Appendix A: Informed Consent

***Informed Consent Statement***

_____

Juror Decision Making

INTRODUCTION

The Department of Communication Studies at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of this study is to better understand factors that influence juror decision making.

PROCEDURES

You will be asked to review an expert witness testimony then come up with a verdict and complete a questionnaire based on the testimony. The study should take approximately an hour.

RISKS

This study anticipates no risks.

BENEFITS

Participants will not directly benefit. However, by participating in this study, the participant will be helping to further research in the area of Legal Communication in Communication Studies.

PAYMENT TO PARTICIPANTS

Participation in the study will result in 15 points of toward course requirements.

INFORMATION TO BE COLLECTED

To perform this study, researchers will collect information about you. This information will be obtained from: Self reported questionnaires.

PARTICIPANT CONFIDENTIALITY

Your name will not be associated in any publication or presentation with the information collected about you or with the research findings from this study. Your identifiable information will not be shared.

The researchers will not share information about you with anyone not specified above unless required by law or unless you give written permission

The information collected about you will be used by: Arianne Fuchsberger

Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your information for purposes of this study at any time in the future."

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to: Arianne Fuchsberger, Bailey Hall 111 Lawrence KS 66045

If you cancel permission to use your information, the researchers will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher(s) listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785)

864-7385, write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

I agree to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

_____ _____

Type/Print Participant's Name Date

_____

Participant's Signature

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## Appendix B: Court Transcripts

### *Transcript of the Judge's Opening Statements*

The dispute you will consider today involves a claim brought on by Mr. Eric Jones. Plaintiff purchased a box of masonry nails from a lumber and hardware supply company, defendants Coleman Lumber & Ware Co., Inc (CLWC). He was injured as a result of the alleged shattering of the very first nail used by him and he brings this action to recover damages for those injuries. The nails were manufactured by Saki Nail Works, Japan (Saki) (not a party to this action) and sold by defendant CLWC (America).

The nails were manufactured in Japan by Saki according to CLWC's specifications and were shipped by it in boxes designed by CLWC directly to CLWC, which placed certain labels on the individual boxes of nails and resold them. Plaintiff proceeded against CLWC on the theories of breach of warranty and negligence.

Plaintiff testified that in the early afternoon of August 20, he purchased a sealed box of nails at a lumber and hardware store operated by CLWC and that he had never before purchased masonry nails. He said that he informed the CLWC salesman that he was in the process of finishing his basement and intended to place paneling over the hard concrete walls and that the salesman told him that "I should place some Stud material along the concrete wall about two feet apart and then hammer these in with nails, and with that he gave me a box of nails and that these are the type of nails I would use." Plaintiff further testified that he was directed by the salesman to put up studding and then nail it to the concrete wall and then nail the panels to the studding and that all nailing was to be done with the nails which plaintiff testifies were given him by the salesman for this particular purpose. It is undisputed that on the top of the box of nails sold to plaintiff appears the following legend:

"COLEMAN LUMBER & WARE CO., INC. NAILS HARDENED STEEL

(picture 2 1/2" .148 5/16" of nail) ONE POUND NET NAILS UNLIMITED"

and that on the bottom of the box appeared the words,

"ONE POUND NET MFRD IN JAPAN FOR COLEMAN LUMBER & WARE CO., INC KC MO"

Plaintiff testified that there were no directions inside the box whereas the witnesses for CLWC and Saki testified that the manufacturer, as directed by CLWC, was supposed to insert a slip of instructions in each box which read: "Directions: Hardened masonry nails can be hammered into mortar, cinder blocks and other comparatively soft masonry in the same way as ordinary nails are hammered into wood. When they are to be used in concrete, brick or other hard substances, it is necessary to first drill a hole about 2/3 of the length of the nail."

Plaintiff testified that in the afternoon of August 20, he opened the box of masonry nails and hammered one of them to a point about 3/4 inches into the 1-inch stud; that he then picked up the stud and placed it against the concrete wall of the basement and hammered the nail head into the stud and that as the nail made contact with the concrete wall the head of the nail flew back and struck him in his right eye. Plaintiff claims that CLWC was negligent in how it manufactured the nail that shattered and that as a result of that negligence he suffered personal injuries.

Today, you as a juror will hear each party's expert witness testify as to whether the other nails in the box purchased by plaintiff from CLWC were defective. The plaintiff's expert witness is a licensed mechanical engineer testifying that the nails were defective in that they were hard and brittle; the nails shattered easily. The defense expert witness is a metallurgist engineer testifying that he also examined the nails and found nothing wrong with them. Based upon the expert witnesses' testimonies, you will be asked to determine the likelihood defendant CLWC was negligent in how it manufactured the nail that shattered and that as a result of that negligence plaintiff suffered personal injuries. Your verdict will be based on the Preponderance of the Evidence, meaning you must believe that one side's claim is more likely true than not. In other words, the likelihood the claim is true must be greater than 50%.

***Direct Examination of Plaintiff Expert Witness***

**P Attorney**: Please give us your full name.

**Expert Witness**: William Roger Samuels.

**P Attorney**: Mr. Samuels, what is your occupation?

**Samuels**: I am a licensed professional engineer in New York, Pennsylvania, and Massachusetts and as such do consulting work in the field of safety engineering and mechanics. I also have my own experimental testing and development laboratory.

**P Attorney**: How long have you been in that business?

**Samuels**: I have been in that business for 30 years.

**P Attorney**: And what degree do you hold?

**Samuels**: I have a Bachelor of Mechanical Engineering degree for work at the College of the City of New York, School of Technology. I also have a Master of Mechanical Engineering degree for work at Stevens Institute of Technology and Polytechnic Institute, Brooklyn.

**P Attorney**: Who else do you work for?

**Samuels**: I am also on the teaching staff currently at the College of the City of New York in the graduate division, and as a consultant I do work for various companies. Currently I am doing a major job for Southern Electric Company.

**P Attorney**: Now, Mr. Samuels, did you receive from me a quantity of nails from Plaintiff's Exhibit 1 in evidence?

**Samuels**: I received a quantity of nails.

**P Attorney**: Can you please explain for the jury the type of nails you received?

**Samuels**: The nails I received were masonry nails. Masonry nails are a specific type of nail designed to be driven into concrete or the mortar used to hold together bricks or cement blocks.

**P Attorney**: And these masonry nails are different from ordinary nails?

**Samuels**: Yes. In woodworking and construction, an ordinary nail is used. Nails for wood are usually of a soft, low-carbon or mild steel. Masonry nails are harder, which allows it to be driven into harder materials like concrete and masonry without bending or dulling during installation. The basic difference is that the tip of the masonry nail is hardened to penetrate into the relatively hard masonry or concrete. In order to be able to have a hard tip, it has to be made of a hardened material, such as carbon steel. However, the head and body of the masonry nail is made relatively softer than the tip of the nail in order to make sure the nail does not shatter during penetration.

**P Attorney**: You emphasized tip. Do you mean by that that the tip should be made of different substance than the rest of the nail?

**Samuels**: On the contrary, it would be expensive to do so. The nail can be made of a uniform material, but only the ends should be hard enough to penetrate.

**P Attorney**: Now will you tell us the tests that you performed and your findings?

**Samuels**: There were several tests performed, including tests for the hardness of the materials, tests for surface imperfections and nail structure, bending tests and driving them into masonry and into concrete.

**P Attorney**: In testing for hardness, can you tell us just what you did?

**Samuels**: In testing for hardness I cleaned off the surface of the masonry nail, which is a fluted surface, put it into a grinding machine, a grinder, and cleaned it off so I could get a flat surface. This was then subjected to a Standard tester.

**P Attorney**: What is the Standard tester for hardness?

**Samuels**: Hardness is a condition reflecting the resistance to penetration by a standard test procedure or the question of how difficult it is to make an impression on a substance. The Standard tester is a standard machine that uses a hardened point to penetrate into the surface of the metal. The degree of penetration is measured by the machine and is an indication of the hardness, which in this case is a resistance to penetration. The higher the number of the degree of penetration the harder the metal.

**P Attorney**: What did your tests disclose?

**Samuels:** The nails showed an average hardness of (carbon) C -49 at the head of the nail, C-49 at the body of the nail, and C-49 at the tip of the nail.

**P Attorney**: And what should the average be?

**Samuels**: The average hardness of a functional masonry nail should be as hard as a Standard of C-65 or a little harder at the tip of the nail and have a hardness of C-35 at the body and head of the nail.

**P Attorney**: What about the bending tests and driving them into masonry and into concrete?

**Samuels**: There were variations bending reaction from nail to nail and from test to test. One of the nails, in fact, failed at a point one-third from the end. In another test for bending, one nail ruptured after 60 degrees of bending and another was bent through 90 degrees without rupture. Then tests were performed on driving the nails into concrete. Two of the nails so driven shattered and ruptured at a point approximately halfway up the length. That concludes my summary.

**P Attorney**: So the body of the masonry nails you tested were too hard?

**Samuels**: Yes. Because the bodies of the masonry nails were too hard compared, the nails shattered.

**P Attorney**: Now, these nails, how would you classify them?

**Samuels**: These nails were extremely hard at the body and head, and extremely soft at the tip compared to functional masonry nails.

**P Attorney**: How does this compare to a functional masonry nail?

**Samuels**: Functional masonry nails have a hard tip and a relatively softer body and head. The reason for this is so the tip of the nail is hard enough to penetrate concrete and masonry. The head and body of the masonry nail is softer than the tip so will not shatter upon being struck, but also hard enough so that it will not bend during penetration.

**P Attorney**: So, in the case of a functional masonry nail, you want it to be harder at the tip than the body and the head?

**Samuels**: Yes, sir.

**P Attorney**: And what did your tests say about these specific masonry nails in Exhibit One?

**Samuels**: The tips of the nails were too soft and the head and body of the masonry nails were too hard.

**P Attorney**: Were these nails in your opinion proper nails to be hammered into concrete or masonry?

**Samuels**: In my opinion these nails were not proper for use in concrete or masonry.

**P Attorney**: Why?

**Samuels**: Because they easily shattered on impact from a driving tool, in this case a hammer.

**P Attorney**: Did you examine the head of the nails?

**Samuels**: Yes.

**P Attorney**: What did you find about the head of the nails?

**Samuels**: I found that the heads were all about the same hardness substantially as the rest of the bodies.

**P Attorney**: And how were the heads connected to the nail?

**Samuels:** The heads were directly part of the body of the nail. Actually, in their manufacture the head's flattened in a wedging machine from wire.

**P Attorney**: What is wrong with the heads having the same hardness as the rest of the body?

**Samuels**: Only the tip of the nail should be hard for penetration into concrete or masonry. The rest of the nail should be comparatively softer to reduce the shatterability.

**P Attorney**: What is the process of annealing?

**Samuels**: Annealing is a heat treatment that reduces brittleness by changing the structure of the steel.

**P Attorney**: What is the proper way to make the head in this particular case?

**Samuels**: The proper way to finish the head in this case would be to take the hardened nails and heat treat all but the very tip.

**P Attorney**: And was this head or the top part of the nail annealed?

**Samuels**: No.

**P Attorney**: Now, are you familiar with the way masonry nails are made according to American standards?

**Samuels**: Yes.

**P Attorney**: Were these nails that you examined, the nails in question that were manufactured in Japan, did they conform to American standard nails to be used for masonry and concrete?

**Samuels**: No.

**P Attorney**: And they did not conform in the particulars that you mentioned?

**Samuels**: Yes, sir, they were not annealed.

**P Attorney**: Now, Mr. Samuels, tell me; a nail constructed as this nail was, which you say is not in accordance with the American standards, what would be the natural tendency of the head if it was struck by a hammer into concrete or masonry?

**Samuels**: Very likely that the head would shatter and splinter and fly off.

**P Attorney**: Would it make any difference whether the plaintiff had put a hole in the concrete by drilling it or if the plaintiff didn't put a hole in, the nail would still go into the concrete if you hit it by a hammer, wouldn't it?

**Samuels**: Yes, sir.

**P Attorney**: And the results would be the same?

**Samuels**: The results would be the same as to the shattering, yes, sir.

**P Attorney**: Tell me this, would the shatterability of the nail depend upon the thickness of the masonry or concrete?

**Samuels**: No, sir.

**P Attorney**: No matter how hard the concrete, a functional masonry nail should still be able to penetrate it without shattering?

**Samuels**: Yes, sir.

**P Attorney**: If someone were to incorrectly hit the nails, such as strike the nail on the side of the body rather than on the head, would that cause the nail to shatter?

**Samuels**: No. If a masonry nail is properly made, it would not matter how the nail is struck.

**P Attorney**: A functional masonry nail would not shatter?

**Samuels**: Right. A functional masonry nail would bend, not shatter. No matter how it is struck.

**P Attorney**: Thank you.

***Cross Examination Plaintiff's Expert***

**D Attorney**: Mr. Samuels, how many nails were submitted to you by the P Attorney for your inspection? And how many did you test?

**Samuels**: I don't recall the exact number that were submitted to me but I did test about ten or twelve of them and I find that there is only one nail in my collection that has not been hammered, or rather, tested other than by measuring the hardness with a tester.

**D Attorney**: Did the Attorney give you whatever quantity of nails that you subsequently say you tested, or did you select from a box a quantity to be tested, which is it?

**Samuels**: They were sent to me with a letter from the P Attorney.

**D Attorney**: When you say "they," you mean ten or twelve nails?

**Samuels**: Yes, sir.

**D Attorney**: What did you come up with in your measurements for hardness degree, what degrees did you come up with on the ten nails that you say you tested in this way?

**Samuels**: Taking an average--

**D Attorney**: Never mind the average. I want it for each of the nails. You say you tested ten nails?

**Samuels**: Ten to twelve, yes.

**D Attorney**: So ten nails you tested for hardness?

**Samuels**: Ten to twelve, yes.

**D Attorney**: Did you make a notation of the degree for each one of the nails you tested?

**Samuels**: Yes.

**D Attorney**: Let us have the degree for each one of the nails you tested.

**Samuels**: I don't have the file here but I have a summary in front of me.

**D Attorney**: In that summary do you have a breakdown of the hardness for each nail?

**Samuels**: No, sir.

**D Attorney**: Just the average?

**Samuels**: The average.

**D Attorney**: The average doesn't help much does it?

**Samuels**: Yes, it does.

**D Attorney**: Why?

**Samuels**: Because some of these might be very soft, relatively soft. Others would be hard as Standard C-55 which is 5 points harder than the average.

**D Attorney**: What was the average?

**Samuels**: The average was Standard 50.

**D Attorney:** What should the average be?

**Samuels**: Well, at the head for proper annealing—after proper annealing I should say—it should be as low as about Standard C-35. The point could be as hard as a Standard C-60 or a little harder.

**D Attorney**: Did you make notation of the relative degree of harness at any one of the points of this particular nail?

**Samuels**: Yes, sir.

**D Attorney**: You didn't bring any of those notations with you did you?

**Samuels**: No, sir.

**D Attorney**: All you did in the report is give your average for all the nails that you tested, is that correct?

**Samuels**: Yes, sir.

**D Attorney**: Did you give an average of the hardness of any particular portion of the nail or of the entire nail in your report?

**Samuels**: In my report I said the masonry nails under my test showed an average hardness of Standard C-49 at the head, C-49 at the body, and C-49 at the tip. They are uniform in hardness down the length of the nail.

**D Attorney**: Now, can you tell me what variations there were in these ten nails in the hardness that you found?

**Samuels**: There were variations from one nail to another with a variation range of about 5 points plus or minus.

**D Attorney**: Did you report that?

**Samuels**: No, sir.

**D Attorney**: And you didn't bring with you the notes that you made showing the exact measurements of the hardness of any particular nail or at the point of that nail inspected, did you sir?

**Samuels**: I did not.

**D Attorney**: Now these ten to twelve nails that were shipped to you by P Attorney, you first examined them visually, didn't you?

**Samuels**: Yes, sir.

**D Attorney**: Did you find upon visual examination any defects, yes or no?

**Samuels**: Nothing substantial.

**D Attorney**: In other words, if you took an American nail and you put it side by side with a Japanese nail, from mere visual observation you would find nothing wrong with the Japanese nail?

**Samuels**: Correct.

**D Attorney**: Did you examine these nails microscopically?

**Samuels**: Yes, sir.

**D Attorney**: Did you see any defects in the surface of the nail when you examined it microscopically or internally?

**Samuels**: Well, I didn't examine internally because with the microscope one doesn't. However, I did find that there were scratches which can be interpreted as defects in the nail.

**D Attorney**: Did you make any findings of your microscopic test?

**Samuels**: I didn't report on that because in my opinion it wasn't significant.

**D Attorney**: You didn't find any significance under your microscopic test, is that what you are saying?

**Samuels**: That is what I am saying.

**D Attorney**: Did you report that you did make a microscopic examination?

**Samuels**: Not is this report, sir, no.

**D Attorney**: Did you make a chemical test of these nails?

**Samuels**: No, sir.

**D Attorney**: Do you know the chemical compound of these nails?

**Samuels**: No, sir.

**D Attorney**: Didn't you think that it was vital to conduct a chemical analysis before you rendered any expert opinion with respect to these ten or twelve nails that were given to you?

**Samuels**: No.

**D Attorney**: Then is it a fact that when you found by looking at the City Testing and Research Labaratories, Inc. report done by our expert witness, that what they had done in the way of taking and making a chemical analysis was, in your opinion, overkill?

**Samuels:** Well I don't know what they were trying to establish but for my immediate purpose of the investigation I didn't feel that the time warranted, or rather, that the time was warranted for such an investigation

**D Attorney:** Do I understand you to mean by that that what you found upon your examination, the things that you did were sufficient to convince you that a chemical analysis of the nails could only bear out your conclusions?

**Samuels**: I felt that the defect was a mechanical defect and not a chemical defect in the fact that these nails were so hard and brittle indicated enough to establish that they were defective. Further investigation I felt would only—might substantiate but certainly would not negate it.

**D Attorney**: Wouldn't a chemical analysis help you in making up your mind whether you found that the nails were defective because it was too hard or too brittle, that you would then have a reason for finding insofar as its composition was concerned?

**Samuels**: No, in my opinion it was not properly annealed, and chemical analysis would not tell me that it was or was not annealed. Chemical analysis would only indicate the nature of the steel.

**D Attorney**: Now, you mention that you took these nails and you drove them into masonry and into concrete, do you recall that?

**Samuels**: Yes, sir.

**D Attorney**: Is there a difference between masonry and concrete?

**Samuels**: As I understand it, there is a difference.

**D Attorney**: What is that difference?

**Samuels**: Masonry refers to the mortar and bricks, whereas concrete refers to a cement sandstone mixture that has hardened.

**D Attorney**: In order to use a nail that would penetrate concrete, you would be required to use a nail that is harder at the tip certainly than the nail that you would be required to penetrate mortar or brick, isn't that so?

**Samuels**: Not necessarily.

**D Attorney**: Well, a soft nail would go into concrete, would it?

**Samuels**: No.

**D Attorney**: It would have to be a hard nail to go into concrete, wouldn't it?

**Samuels**: Yes, but a nail that is hard enough to go into masonry will probably also go into concrete.

**D Attorney**: Just by driving it in?

**Samuels**: Yes, sir.

**D Attorney**: Without preparing the concrete, for instance, by making an opening with a drill?

**Samuels**: Not necessarily that way.

**D Attorney**: But is that a proper way to do things when you want to drive a nail into concrete, drill a hole first?

**Samuels**: It could be used with anything to cut down on the amount of force required. It could be done with metal. You can drill a small hole into wood to make it easier to drive a nail in.

**D Attorney**: Did you in any of the concrete or masonry in which you drove any of your nails into use a drill beforehand?

**Samuels**: On one or two of the tests into concrete I did use a drill.

**D Attorney**: Why did you use a drill?

**Samuels**: Because in a conversation with the P Attorney he indicated that one of the recommendations in a purported instruction sheet indicated that a drill hole should be made into concrete prior to driving the masonry nail into that concrete.

**D Attorney**: Did you agree with that concept?

**Samuels**: No, I can't see any real purpose other than to contain the nail in the event that it does shatter.

**D Attorney**: Would you expect these masonry nails to shatter?

**Samuels**: Yes, on the basis of the information I had received that one of them had shattered, I did expect this to shatter.

**D Attorney**: Who told you that a nail had shattered?

**Samuels**: The P Attorney.

**D Attorney**: No further questions.

***Cross Examination of Plaintiff Expert Witness – Low Trustworthiness***

**D Attorney:** Have you had a chance to review the transcript of your deposition testimony concerning your Master of Mechanical Engineer degree?

**Samuels:** Yes, I have. I had a chance to read the transcripts.

**D Attorney**: Remember how you swore to tell the truth?

**Samuels**: Yes.

**D Attorney:** Remember how you told me you had a Master of Mechanical Engineering degree from Stevens Institute of Technology and Polytechnic Institute, Brooklyn?

**Samuels:** Yes.

**D Attorney**: The truth is you don't have a Master of Mechanical Engineering degree from Stevens Institute of Technology and Polytechnic Institute, Brooklyn, do you?

**Samuels**: I did take masters level mechanical engineering course.

**D Attorney:** But the fact is, you don't have a Master of Mechanical Engineering degree, right?

**Samuels**: That's what I just said, yes.

**D Attorney:** Why did you claim that you had a master degree when you didn't?

**Samuels:** When I made my statement, I spoke erroneously. I meant to say that I had taken a master course in mechanical engineering.

**D Attorney:** Your resume indicates you have a Master of Mechanical Engineering.

**Samuels:** The resume is incorrect

**D Attorney:** Are you a graduate of College of the City of New York, School of Technology?

**Samuels:** Yes.

**D Attorney**: You have Bachelor's degree?

**Samuels:** Yes.

**D Attorney**: But you do not have a Master's of Science degree, do you?

**Samuels**: No, sir.

**D Attorney:** Do you have current professional engineering licenses from any state?

**Samuels:** Yes, New York. The rest have lapsed.

**D Attorney**: But in your direct examination you testified that you had several current professional engineering licenses, didn't you?

**Samuels:** Yes.

**D Attorney**: So, you did not tell the jury the truth about your professional engineering licenses, did you?

**Samuels:** I did take the exams.

**D Attorney**: Mr. Samuels, how many nails were submitted to you by the P Attorney for your inspection? And how many did you test?

**Samuels**: I don't recall the exact number that were submitted to me but I did test about ten or twelve of them and I find that there is only one nail in my collection that has not been hammered, or rather, tested other than by measuring the hardness with a tester.

**D Attorney**: Did the Attorney give you whatever quantity of nails that you subsequently say you tested, or did you select from a box a quantity to be tested, which is it?

**Samuels**: They were sent to me with a letter from the P Attorney.

**D Attorney**: When you say "they," you mean ten or twelve nails?

**Samuels**: Yes, sir.

**D Attorney**: What did you come up with in your measurements for hardness degree, what degrees did you come up with on the ten nails that you say you tested in this way?

**Samuels**: Taking an average--

**D Attorney**: Never mind the average. I want it for each of the nails. You say you tested ten nails?

**Samuels**: Ten to twelve, yes.

**D Attorney**: So ten nails you tested for hardness?

**Samuels**: Ten to twelve, yes.

**D Attorney**: Did you make a notation of the degree for each one of the nails you tested?

**Samuels**: Yes.

**D Attorney**: Let us have the degree for each one of the nails you tested.

**Samuels**: I don't have the file here but I have a summary in front of me.

**D Attorney**: In that summary do you have a breakdown of the hardness for each nail?

**Samuels**: No, sir.

**D Attorney**: Just the average?

**Samuels**: The average.

**D Attorney**: The average doesn't help much does it?

**Samuels**: Yes, it does.

**D Attorney**: Why?

**Samuels**: Because some of these might be very soft, relatively soft. Others would be hard as Standard C-55 which is 5 points harder than the average.

**D Attorney**: What was the average?

**Samuels**: The average was Standard 50.

**D Attorney:** What should the average be?

**Samuels**: Well, at the head for proper annealing—after proper annealing I should say—it should be as low as about Standard C-35. The point could be as hard as a Standard C-60 or a little harder.

**D Attorney**: Did you make notation of the relative degree of harness at any one of the points of this particular nail?

**Samuels**: Yes, sir.

**D Attorney**: You didn't bring any of those notations with you did you?

**Samuels**: No, sir.

**D Attorney**: All you did in the report is give your average for all the nails that you tested, is that correct?

**Samuels**: Yes, sir.

**D Attorney**: Did you give an average of the hardness of any particular portion of the nail or of the entire nail in your report?

**Samuels**: In my report I said the masonry nails under my test showed an average hardness of Standard C-49 at the head, C-49 at the body, and C-49 at the tip. They are uniform in hardness down the length of the nail.

**D Attorney**: Now, can you tell me what variations there were in these ten nails in the hardness that you found?

**Samuels**: There were variations from one nail to another with a variation range of about 5 points plus or minus.

**D Attorney**: Did you report that?

**Samuels**: No, sir.

**D Attorney**: And you didn't bring with you the notes that you made showing the exact measurements of the hardness of any particular nail or at the point of that nail inspected, did you sir?

**Samuels**: I did not.

**D Attorney**: Now these ten to twelve nails that were shipped to you by P Attorney, you first examined them visually, didn't you?

**Samuels**: Yes, sir.

**D Attorney**: Did you find upon visual examination any defects, yes or no?

**Samuels**: Nothing substantial.

**D Attorney**: In other words, if you took an American nail and you put it side by side with a Japanese nail, from mere visual observation you would find nothing wrong with the Japanese nail?

**Samuels**: Correct.

**D Attorney**: Did you examine these nails microscopically?

**Samuels**: Yes, sir.

**D Attorney**: Did you see any defects in the surface of the nail when you examined it microscopically or internally?

**Samuels**: Well, I didn't examine internally because with the microscope one doesn't. However, I did find that there were scratches which can be interpreted as defects in the nail.

**D Attorney**: Did you make any findings of your microscopic test?

**Samuels**: I didn't report on that because in my opinion it wasn't significant.

**D Attorney**: You didn't find any significance under your microscopic test, is that what you are saying?

**Samuels**: That is what I am saying.

**D Attorney**: Did you report that you did make a microscopic examination?

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**D Attorney**: Did you make a chemical test of these nails?

**Samuels**: No, sir.

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**D Attorney**: Who told you that a nail had shattered?

**Samuels**: The P Attorney.

**D Attorney**: No further questions.

***Cross Examination of Plaintiff Expert Witness – Low Expertise***

**D Attorney:** Mr. Samuels, you claimed that you are on the teaching staff at the College of the City of New York in the graduate division.

**Samuels:** Yes, I did.

**D Attorney:** How long have you been on the teaching staff?

**Samuels**: Seven years.

**D Attorney**: What classes do you teach at the College of the City of New York in the graduate division?

**Samuels:** I teach a course in Mechanical Engineering and Civil Engineering.

**D Attorney:** To my knowledge - and let me know if I am right about this – but to my knowledge, a requirement of working on the teaching staff at the College of the City of New York in the graduate division is to publish your own research in scholarly journals, correct?

**Samuels:** Yes, that is correct.

**D Attorney:** Have you published your ideas in any scholarly journals?

**Samuels:** Yes.

**D Attorney:** How many of your ideas have been published?

**Samuels:** I have had one article published.

**D Attorney:** So in the seven years of being on the teaching staff, which requires you to submit your own ideas to scholarly research journals, you have only had one of your ideas published.

**Samuels**: That's what I just said, yes.

**D Attorney**: And where was this one article published?

**Samuels**: It was published in the magazine, *Nuts and Volts*.

**D Attorney**: Which is in fact not a scholarly journal, right?

**Samuels**: It has scholarly articles.

**D Attorney**: Let me rephrase that, the magazine that published your article is not considered a scholarly peer reviewed journal that the graduate division of the college you work at requires their staff to publish in, right?

**Samuels**: That's correct.

**D Attorney:** How many times was this article rejected by the scholarly journals before it was published in a pop culture magazine?

**Samuels:** It had been rejected six times.

**D Attorney**: So, isn't it true that your work is poorly regarded by your colleagues?

**Samuels**: No.

**D Attorney**: But none of your ideas have been accepted by your peers to be published in a scholarly journal, have they?

**Samuels**: Right.

**D Attorney**: So your work is poorly regarded by your colleagues, isn't it?

**Samuels**: No I don't think so.

**D Attorney**: Hasn't your work been sharply criticized in the past?

**Samuels**: There have been those that disagree with it, yes.

**D Attorney**: Criticized it enough not to publish it in a scholarly journal, right?

**Samuels**: Yes.

**D Attorney:** And tell me Mr. Samuels, what was the topic of your research article that you had published in the pop culture magazine?

**Samuels:** It was about the problems and practices of foundation and pavement?

**D Attorney:** It didn't have anything to do with nails or the hardness of material?

**Samuels**: No it did not.

**D Attorney**: It does not even fall under the category of Mechanical Engineering does it?

**Samuels:** No, sir.

**D Attorney:** So you are testifying about Mechanical Engineering, but your own ideas and research would fall under the category of Civil Engineering?

**Samuels:** Yes.

**D Attorney**: Mr. Samuels, how many nails were submitted to you by the P Attorney for your inspection? And how many did you test?

**Samuels**: I don't recall the exact number that were submitted to me but I did test about ten or twelve of them and I find that there is only one nail in my collection that has not been hammered, or rather, tested other than by measuring the hardness with a tester.

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**D Attorney**: In that summary do you have a breakdown of the hardness for each nail?

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**Samuels**: Because in a conversation with the P Attorney he indicated that one of the recommendations in a purported instruction sheet indicated that a drill hole should be made into concrete prior to driving the masonry nail into that concrete.

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**D Attorney**: Who told you that a nail had shattered?

**Samuels**: The P Attorney.

**D Attorney**: No further questions.

***Cross Examination of Plaintiff Expert Witness – Low Expertise/Low Credibility***

**D Attorney:** Have you had a chance to review the transcript of your deposition testimony?

**Samuels:** Yes, I have. I had a chance to read the transcripts.

**D Attorney**: Remember how you swore to tell the truth?

**Samuels**: Yes.

**D Attorney:** Remember how you told me you had a Master of Mechanical Engineering degree from Stevens Institute of Technology and Polytechnic Institute, Brooklyn?

**Samuels:** Yes.

**D Attorney**: The truth is you don't have a Master of Mechanical Engineering degree from Stevens Institute of Technology and Polytechnic Institute, Brooklyn, do you?

**Samuels**: I did take masters level mechanical engineering course.

**D Attorney:** But the fact is, you don't have a Master of Mechanical Engineering degree, right?

**Samuels**: That's what I just said, yes.

**D Attorney**: Do you also remember how you claimed in your direct examination that you are on the teaching staff at the College of the City of New York in the graduate division?

**Samuels:** Yes

**D Attorney:** The truth is you do not hold a position on the teaching staff at the College of the City of New York, do you?

**Samuels:** I have given several guest lectures at the college.

**D Attorney:** But the fact is, you don't have a teaching position, right?

**Samuels**: Correct.

**D Attorney:** Why did you claim that you had a teaching position when you didn't?

**Samuels:** When I made my statement, I spoke erroneously. I meant to say that I had given several guest lectures.

**D Attorney**: And of those lectures you have given, none of them were to graduate level students, were they?

**Samuels**: No, sir.

**D Attorney**: So not only do you not have a teaching position at College of the City of New York in the graduate division, you have not even given a lecture to anyone in the graduate division, have you?

**Samuels**: No, sir. The College of the City of New York has a graduate division –

**D Attorney**: They have a graduate division, but you have never spoke to graduate students, right?

**Samuels**: Right.

**D Attorney**: Just undergraduates?

**Samuels**: Yes.

**D Attorney**: And of these guest lectures to undergraduate level students, what is the subject in which you are lecturing?

**Samuels:** I have given lectures in Civil Engineering.

**D Attorney**: And in this case, you are testifying as a Mechanical Engineer?

**Samuels**: Yes.

**D Attorney**: But the emphasis of your work is in Civil Engineering?

**Samuels**: Yes, but I have a degree in Mechanical Engineering.

**D Attorney**: But the lectures you give aren't about Mechanical Engineering, are they?

**Samuels**: No, sir.

**D Attorney**: Isn't it true that your work is poorly regarded by your colleagues?

**Samuels**: I don't think so.

**D Attorney**: Hasn't your work been sharply criticized in the past?

**Samuels**: There have been those that disagree with it, yes.

**D Attorney**: Criticized it enough not to publish it in a scholarly journal, right?

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**D Attorney**: Why?

**Samuels**: Because some of these might be very soft, relatively soft. Others would be hard as Standard C-55 which is 5 points harder than the average.

**D Attorney**: What was the average?

**Samuels**: The average was Standard 50.

**D Attorney:** What should the average be?

**Samuels**: Well, at the head for proper annealing—after proper annealing I should say—it should be as low as about Standard C-35. The point could be as hard as a Standard C-60 or a little harder.

**D Attorney**: Did you make notation of the relative degree of harness at any one of the points of this particular nail?

**Samuels**: Yes, sir.

**D Attorney**: You didn't bring any of those notations with you did you?

**Samuels**: No, sir.

**D Attorney**: All you did in the report is give your average for all the nails that you tested, is that correct?

**Samuels**: Yes, sir.

**D Attorney**: Did you give an average of the hardness of any particular portion of the nail or of the entire nail in your report?

**Samuels**: In my report I said the masonry nails under my test showed an average hardness of Standard C-49 at the head, C-49 at the body, and C-49 at the tip. They are uniform in hardness down the length of the nail.

**D Attorney**: Now, can you tell me what variations there were in these ten nails in the hardness that you found?

**Samuels**: There were variations from one nail to another with a variation range of about 5 points plus or minus.

**D Attorney**: Did you report that?

**Samuels**: No, sir.

**D Attorney**: And you didn't bring with you the notes that you made showing the exact measurements of the hardness of any particular nail or at the point of that nail inspected, did you sir?

**Samuels**: I did not.

**D Attorney**: Now these ten to twelve nails that were shipped to you by P Attorney, you first examined them visually, didn't you?

**Samuels**: Yes, sir.

**D Attorney**: Did you find upon visual examination any defects, yes or no?

**Samuels**: Nothing substantial.

**D Attorney**: In other words, if you took an American nail and you put it side by side with a Japanese nail, from mere visual observation you would find nothing wrong with the Japanese nail?

**Samuels**: Correct.

**D Attorney**: Did you examine these nails microscopically?

**Samuels**: Yes, sir.

**D Attorney**: Did you see any defects in the surface of the nail when you examined it microscopically or internally?

**Samuels**: Well, I didn't examine internally because with the microscope one doesn't. However, I did find that there were scratches which can be interpreted as defects in the nail.

**D Attorney**: Did you make any findings of your microscopic test?

**Samuels**: I didn't report on that because in my opinion it wasn't significant.

**D Attorney**: You didn't find any significance under your microscopic test, is that what you are saying?

**Samuels**: That is what I am saying.

**D Attorney**: Did you report that you did make a microscopic examination?

**Samuels**: Not is this report, sir, no.

**D Attorney**: Did you make a chemical test of these nails?

**Samuels**: No, sir.

**D Attorney**: Do you know the chemical compound of these nails?

**Samuels**: No, sir.

**D Attorney**: Didn't you think that it was vital to conduct a chemical analysis before you rendered any expert opinion with respect to these ten or twelve nails that were given to you?

**Samuels**: No.

**D Attorney**: Then is it a fact that when you found by looking at the City Testing and Research Labaratories, Inc. report done by our expert witness, that what they had done in the way of taking and making a chemical analysis was, in your opinion, overkill?

**Samuels:** Well I don't know what they were trying to establish but for my immediate purpose of the investigation I didn't feel that the time warranted, or rather, that the time was warranted for such an investigation

**D Attorney:** Do I understand you to mean by that that what you found upon your examination, the things that you did were sufficient to convince you that a chemical analysis of the nails could only bear out your conclusions?

**Samuels**: I felt that the defect was a mechanical defect and not a chemical defect in the fact that these nails were so hard and brittle indicated enough to establish that they were defective. Further investigation I felt would only—might substantiate but certainly would not negate it.

**D Attorney**: Wouldn't a chemical analysis help you in making up your mind whether you found that the nails were defective because it was too hard or too brittle, that you would then have a reason for finding insofar as its composition was concerned?

**Samuels**: No, in my opinion it was not properly annealed, and chemical analysis would not tell me that it was or was not annealed. Chemical analysis would only indicate the nature of the steel.

**D Attorney**: Now, you mention that you took these nails and you drove them into masonry and into concrete, do you recall that?

**Samuels**: Yes, sir.

**D Attorney**: Is there a difference between masonry and concrete?

**Samuels**: As I understand it, there is a difference.

**D Attorney**: What is that difference?

**Samuels**: Masonry refers to the mortar and bricks, whereas concrete refers to a cement sandstone mixture that has hardened.

**D Attorney**: In order to use a nail that would penetrate concrete, you would be required to use a nail that is harder at the tip certainly than the nail that you would be required to penetrate mortar or brick, isn't that so?

**Samuels**: Not necessarily.

**D Attorney**: Well, a soft nail would go into concrete, would it?

**Samuels**: No.

**D Attorney**: It would have to be a hard nail to go into concrete, wouldn't it?

**Samuels**: Yes, but a nail that is hard enough to go into masonry will probably also go into concrete.

**D Attorney**: Just by driving it in?

**Samuels**: Yes, sir.

**D Attorney**: Without preparing the concrete, for instance, by making an opening with a drill?

**Samuels**: Not necessarily that way.

**D Attorney**: But is that a proper way to do things when you want to drive a nail into concrete, drill a hole first?

**Samuels**: It could be used with anything to cut down on the amount of force required. It could be done with metal. You can drill a small hole into wood to make it easier to drive a nail in.

**D Attorney**: Did you in any of the concrete or masonry in which you drove any of your nails into use a drill beforehand?

**Samuels**: On one or two of the tests into concrete I did use a drill.

**D Attorney**: Why did you use a drill?

**Samuels**: Because in a conversation with the P Attorney he indicated that one of the recommendations in a purported instruction sheet indicated that a drill hole should be made into concrete prior to driving the masonry nail into that concrete.

**D Attorney**: Did you agree with that concept?

**Samuels**: No, I can't see any real purpose other than to contain the nail in the event that it does shatter.

**D Attorney**: Would you expect these masonry nails to shatter?

**Samuels**: Yes, on the basis of the information I had received that one of them had shattered, I did expect this to shatter.

**D Attorney**: Who told you that a nail had shattered?

**Samuels**: The P Attorney.

**D Attorney**: No further questions.

***Direct Examination of Expert for Defense***

**D Attorney:** Please state your name.

**Witness:** William Joshua Anderson.

**D Attorney:** Mr. Anderson, what is your profession?

**Anderson:** A metallurguical engineer.

**D Attorney:** Briefly tell the court your qualifications, your schooling, the degrees you hold.

**Anderson:** I have a bachelor's and a master's degree in Metallurgical Engineering, Polytechnic Institute of Brooklyn Associate Professor of Metallurgy, Polytechnic and Licensed Engineer, State of New York.

**D Attorney:** Do you presently teach?

**Anderson:** Yes, I do.

**D Attorney:** And your subject?

**Anderson:** I teach physical and mechanical allergy at Polytechnic Institute of Brooklyn.

**D Attorney:** How long have you taught?

**Anderson:** This is my twelfth year.

**D Attorney:** Have you published, written or published any material on your subject?

**Anderson:** Yes, I have. I have published in the Journal of Applied Physics, The Transactions of the American Society of Metallurgical Engineers, the Welding Journal and Nature Magazine.

**D Attorney:** Have you testified in litigation connection with your subject?

**Anderson:** Yes, I have.

**D Attorney:** Mr. Anderson, were you given six masonry nails?

**Anderson:** Yes.

**D Attorney**: – Did you make certain tests on those nails?

**Anderson**: Yes, sir

**D Attorney:** Would you give the court and counsel the benefit of your findings with respect to each of the six nails?

**Anderson:** Yes. We tested five out of the six.

**D Attorney:** You say "we?"

**Anderson:** The City Testing and Research Labarotory. I was in charge of investigation.

**D Attorney:** Did you actually conduct the tests?

**Anderson:** I conducted all but the chemical test.

**D Attorney:** And the sixth you have with you now?

**Anderson:** Yes.

**D Attorney:** That is untested and in the very same condition as it was when it was sent to you?

**Anderson:** Yes.

**D Attorney:** Have you got the other five nails with you?

**Anderson:** I have two whole nails, part of one and two were used in chemical analysis. I do not have them. They were destroyed by the chemical analysis.

**D Attorney:** I am returning to you, Mr. Anderson, Defendant's Exhibits One, Two, and Three and will you be good enough to tell us with respects to Defendant's Exhibit One what you did to the nail?

**Anderson:** This nail was used to determine the hardness of the material, of the nail and also to determine the structure, the metallurgical structure of the nail. We ran Standard C hardness tests on this. We then mounted it, polished it and etched it and studied under the microscope to determine its structure.

**D Attorney:** What did you find?

**Anderson:** We found that the material, the structure of the material is tempered martensite.

**D Attorney:** Which is normal?

**Anderson:** Yes, that is normal.

**D Attorney:** Go ahead.

**Anderson:** We also found that the hardness of the nail was Standard C 55. This hardness was uniform from the head to the tip of the nail.

**D Attorney:** At what point is it a fact that the hardness is uniform from the tip to the head of the nail; is that common to this nail or is it unusual or just what?

**Anderson:** This is normal for any nail; for a masonry nail in particular. The head, the body, and the tip of the nail all have the same hardness. This is the normal thing you should find in functional masonry nails.

**D Attorney:** You have mentioned the term "tempered."

**Anderson:** That is correct.

**D Attorney:** What is "tempered?"

**Anderson:** In the heat treating of a steel such as this what we do is first heat the material to a relatively high temperature in excess of sixteen hundred degrees and quench it rapidly and this gives you a hard substance known as martensite. This is extremely hard but brittle. We then take the material and heat it at a lower temperature. This is known as the tempering operation. What this does is reduce the hardness somewhat making it hard enough to penetrate the concrete or masonry, but still having ductility or benability.

**D Attorney:** It has been testified to here by a man who said he was an expert that the tip of the nail in this kind of masonry nail which goes into masonry and cement should be harder than the rest of the nail. What is your view on that?

**Anderson:** No, the hardness should be the same all the way through.

**D Attorney:** Have you seen any nail, domestic or foreign, to which the tip of the nail was harder by comparison to the rest of the nail?

**Anderson:** No, sir; never.

**D Attorney:** Have you seen and studied and made tests on nails other than Japanese nails?

**Anderson:** Yes, I have.

**D Attorney:** American nails in particular?

**Anderson:** Yes, I have.

**D Attorney:** Have you conducted a recent test on an American nail in respect to this hardening process?

**Anderson:** Yes.

**D Attorney:** Mr. Anderson, what is the process known as "annealing"?

**Anderson:** Annealing is a general term given to any process that is used to soften a metal. If we speak of annealing in the context of this kind of material, what we would do --

**D Attorney:** "This kind," meaning what?

**Anderson:** Steel, a low carbon steel. We would mean the heating above the upper critical temperature which is above sixteen hundred degrees and cool it slowly in air or a furnace and this would drastically soften the material.

**D Attorney:** Is the term 'annealing' used in your profession in respect to tempering nails?

**Anderson:** No, it is not. There are two separate processes. If you anneal a steel you do one thing. If you temper it you do something else.

**D Attorney:** Now address yourself to Exhibit Three. Are those the ones you tested in bending?

**Anderson:** That is correct, sir. What I did with these two nails was to clamp in a vise. Roughly, the bottom two thirds of the nail was clamped in a vise. I then struck it sideward blows with a hammer.

**D Attorney:** When you say "sideward blows," do you mean flush with the head of the nail?

**Anderson:** No.

**D Attorney:** Is that an unusual blow struck on a nail when it is hardened?

**Anderson:** You wouldn't do that to a drive a nail into anything.

**D Attorney:** What happened when you hit the nail the way you did?

**Anderson:** Both nails bent appreciably before they ruptured which indicates there is sufficient ductility in the nails.

**D Attorney:** That means "bendability"?

**Anderson:** That's right. Ductility means the ability to plastically deform, permanently deform a material.

**D Attorney:** At what degree would you say the nails broke when you hit the nails the way you did?

**Anderson:** One broke at about sixty degrees and the other about forty or so degrees.

**D Attorney:** Is that unusual or is that the usual thing?

**Anderson:** This would be the usual thing. This is, in fact, what is required by the Federal Government in their specifications.

D Attorney: So, if a nail is hit improperly, say sideways, you would expect the masonry nail to break after a certain degree?

Anderson: Yes. Improper use of the nail can lead to breakage.

**D Attorney**: Even if the masonry nail meets the Federal Government requirements?

**Anderson**: Correct.

**D Attorney:** Did you find anything wrong with these nails you tested?

**Anderson:** No, sir.

**D Attorney:** Mr. Anderson, it has been testified here, will you please tell me whether you agree with the answer or not, that it makes no difference at what angle you strike a masonry nail or with what force you strike it; that the nail shouldn't break if properly made. Do you agree with that concept?

**Anderson:** No, I do not.

**D Attorney:** Is it your answer then that if it is struck at an angle and with sufficient force, a nail properly made would break?

**Anderson:** Oh, yes.

**D Attorney**: So, in your opinion, if the Plaintiff struck any functional masonry nail improperly, the nail would break.

**Anderson**: Yes, sir?

**D Attorney**: Thank you.

***Cross Exam of Defense Expert***

**P Attorney:** Show me where in your report you made any tests about bending nails?

**Anderson:** They are not in that report.

**P Attorney:** When were they done?

**Anderson:** These were done Monday.

**P Attorney:** This Monday?

**Anderson:** Yes.

**P Attorney:** D Attorney told you what the expert had testified to last week and asked you to make bending tests on the nails, is that correct?

**Anderson:** That is substantially correct.

**P Attorney:** As a matter of fact you probably read over Mr. Samuel's testimony?

**Anderson:** Yes, I did.

**P Attorney:** And this Monday you conducted tests and at this time you never thought fit to conduct any of these tests, is that right?

**Anderson:** The problem was that I --

**P Attorney:** Yes or no?

**Anderson:** Repeat the question.

**P Attorney:** At the time you did not think it was necessary to conduct these tests for bending?

**Anderson:** Right. No.

**P Attorney:** You were asked at that time back in June to make chemical, physical and metallurgical tests on those nails>

**Anderson:** Yes, sir.

**P Attorney:** And hardness tests?

**Anderson:** Yes.

**P Attorney:** Other than that you made no other physical examination of these particular nails?

**Anderson:** Yes. I looked at the microscopic structure at that time, sir.

**P Attorney:** And you found no surface defects? That was what your report was limited to besides your chemical tests?

**Anderson:** I found no surface defects.

**P Attorney:** Right. That is all you reported on the physical nature of these things besides the Standard Hardness and besides the chemical analysis?

**Anderson:** And the structure, sir.

**P Attorney:** When you tested them there for hardness you found a Standard C 55 and C 56?

**Anderson:** I think on reading was C 56, as I remember.

**P Attorney:** As a matter of fact, the hardness you found or the C 55 or C 56 were harder than the tests made by Mr. Samuels last week.

**Anderson:** Yes. It would mean they were harder and possessed less bendability than the ones Mr. Samuels tested, if his readings are correct.

**P Attorney:** Did you ever examine the head of the nails you examined? Did you ever examine the head of those nails?

**Anderson:** I took a hardness reading at the head and also looked at the structure.

**P Attorney:** Why would you take a hardness reading at the head if you assumed all nails were that hard all through?

**Anderson:** I didn't assume that with these nails?

**P Attorney:** They were the same hardness?

**Anderson:** That is correct.

**P Attorney:** Were you told by D Attorney at that time what this case was all about, what the nature of the accident consisted of and what the claims of the plaintiff were?

**Anderson:** No

**P Attorney:** You were just asked to conduct tests like that?

**Anderson:** Yes.

**P Attorney:** Knowing nothing about the facts in this case?

**Anderson:** I was told to conduct a test by Mr. Bird of the City testing who I work for as a consultant. I assume that there was litigation involved.

**P Attorney:** Were you told anything about the details of this particular incident?

**Anderson:** Monday.

**P Attorney:** I am talking about at the time you conducted the tests.

**Anderson:** No.

**P Attorney:** Did you know the claim was that a head had broken off the nail and struck a man in the eye?

**Anderson:** No, I did not know it at the time, sir.

**P Attorney:** Did you try drilling a hole five-eights of the way into a concrete wall and hammering this kind of nail into the concrete wall?

**Anderson:** No, sir.

**P Attorney:** Were you told then the case resolved itself or revolved itself about a man trying to hammer a concrete or masonry nail into a concrete wall?

**Anderson:** No, sir.

**P Attorney:** What physical tests did you do at that time besides the hardness test?

**Anderson:** Physical, hardness and microstructure.

**P Attorney:** Would a C 40 or C 42 be sufficient then for concrete?

**Anderson:** I don't think so.

**P Attorney:** Would Standard C 45 be sufficient to enter concrete?

**Anderson:** This would depend on the hardness of the concrete.

**P Attorney:** And in this case you found C 55 and 56 the whole length of the nail and the head?

**Anderson:** That is correct.

**Judge** Is it harder as you go up in numbers?

**Anderson** Yes,

**P Attorney:** Is there anything in your report about examining the head at that time?

**Anderson:** Specifically the head; no. I don't think I made any mention of it.

**P Attorney:** I have no further questions.

**Appendix B: Expert Witness Credibility Scale**

Please rate the Plaintiff's expert witness, Mr. Samuels, for the following items on the scale provided.
If you are unsure, please take your BEST GUESS.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Unfriendly 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Friendly |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Disrespectful 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Respectful |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Unkind 12 | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Kind |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Ill-Mannered 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Well-Mannered |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Unpleasant 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Pleasant |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Untrustworthy 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Trustworthy |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Untruthful 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Truthful |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Undependable 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Dependable |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Dishonest 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Honest |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| • Unreliable 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Reliable |
| • Not Confident 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Confident |
| • Inarticulate 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Well Spoken |
| • Tense 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Relaxed |
| • Shaken 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Poised |
| • Not Self-Assured 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Self-Assured |
| • Uninformed 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Informed |
| • Illogical 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 Locial |

# TABLES

**Table 1: Descriptive Statistics across the Conditions**

| Likelihood of Defendant Negligence | | | |
|---|---|---|---|
| | | Trustworthiness | |
| | | High/Not Attacked | Low |
| Expertise | High/Not Attacked | M = 2.70<br>SD = .684 | M = 2.35<br>SD = .661 |
| | Low | M = 2.42<br>SD = .614 | M = 2.00<br>SD = .683 |

| Plaintiff Expert Witness Overall Credibility | | | |
|---|---|---|---|
| | | Trustworthiness | |
| | | High/Not Attacked | Low |
| Expertise | High/Not Attacked | M = 5.91<br>SD = 1.34 | M = 5.32<br>SD = 1.17 |
| | Low | M = 5.89<br>SD = 1.17 | M = 5.22<br>SD = .93 |

**Table 2: Descriptive Statistics of Expert Witness Credibility**

| Plaintiff Expert Overall Trustworthiness | | | |
|---|---|---|---|
| | | Trustworthiness | |
| | | High/Not Attacked | Low |
| Expertise | High/Not Attacked | M = 5.76<br>SD = 1.16 | M = 4.21<br>SD = 1.81 |
| | Low | M = 5.88<br>SD = 1.14 | M = 4.26<br>SD = 1.6 |

| Plaintiff Expert Witness Overall Expertise | | | |
|---|---|---|---|
| | | Trustworthiness | |
| | | High/Not Attacked | Low |
| Expertise | High/Not Attacked | M = 5.95<br>SD = 1.64 | M = 5.76<br>SD = 1.16 |
| | Low | M = 5.8<br>SD = 1.26 | M = 5.47<br>SD = 1.26 |

**Table 3: Expert Witness Credibility Dimension Comparison**

| Plaintiff Expert Witness Credibility: Dimension Comparison | | | |
|---|---|---|---|
| | Low Trustworthiness | Control | Low Expertise |
| Trustworthiness | M =4.12<br>SD = 1.18 | M = 5.76<br>SD = 1.16 | M = 5.88<br>SD = 1.14 |
| Expertise | M = 5.48<br>SD = 1.6 | M = 5.95<br>SD = 1.64 | M = 5.80<br>SD = 1.26 |
| Likeability | M = 6.12<br>SD = 1.38 | M = 5.90<br>SD = 1.26 | M = 6.24<br>SD = 1.3 |
| Confidence | M = 5.57<br>SD = 1.10 | M = 6.08<br>SD = 1.15 | M = 5.6<br>SD = 1.23 |